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ABSTRACT

A study examined the collaboration between vocational teachers and their colleagues in vocational English as a Second Language (VESL) or English as a second language (ESL) on behalf of limited English proficient (LEP) students in mainstream vocational classrooms. Visits were made to three secondary and three postsecondary sites nationwide. Data were collected through faculty questionnaires, videotaped classroom observations, and participant interviews. True instructional collaboration was found where language specialists were viewed as experts, not as support personnel. This relationship involved a one-way information exchange: the vocational instruction gave learning content to the language teacher who made it comprehensible to the students. Instructional episodes observed during site visits were illustrative of the potential of vocational instruction to LEP students. Collaboration was not a factor essential to development of effective teaching practices for LEP students in vocational education. The most essential factor to establishment of collaboration was depth and quality of exchange of information between teachers. The following components were found to be most effective in promoting effective programming for vocational LEP students: staff development, support services, curriculum development, bilingual support, and VESL support. The roles suggested for the VESL expert were leading staff development, observing in classrooms, teaching the four skills, and collaborating with vocational colleagues. (Sixty-five references and instruments are appended.) (YLB)

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National Center for Research in Vocational Education

University of California, Berkeley

COLLABORATION FOR INSTRUCTION OF LEP STUDENTS IN VOCATIONAL EDUCATION

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COLLABORATION FOR INSTRUCTION OF LEP STUDENTS IN VOCATIONAL EDUCATION

Elizabeth Platt
(Florida State University)

University of Illinois

with the assistance of

John Shrawder
Zoltan Ujhelyi
Torpong Wannawati

National Center for Research in Vocational Education
University of California at Berkeley
1995 University Avenue, Suite 375
Berkeley, CA 94704

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They would also like to thank the faculty, graduate students, and staff in the Department of Vocational and Technical Education, University of Illinois, for their interest in and support of the project. Alan Peshkin, noted ethnographer of schools in the United States, provided valuable input to the methodology of the project. Mildred Griggs, as NCRVE site director from the Fall of 1990, shepherded the technical report through its completion. Dean of the College of Education, David Pearson, also expressed interest in the project and agreed to be interviewed for the video "The Vocational Classroom: A Great Place to Learn English." Very special thanks are in order to the camera operators who formed a vital part of the research team, Zoltan Ujhelyi and Torpong Wannawati. Mr. Ujhelyi also did most of the editing of the several versions of the video presentation.

PREFACE

The population of persons with limited proficiency in speaking the English language (LEP) is a rapidly growing one in the United States, a population with great promise but often untapped energy and talent. The field of vocational education is charged with the responsibility of providing much-needed skills and expertise to the ever-changing labor market at home. For its potential contribution to the labor force to be realized, however, the LEP population requires strong commitments on the part of both high school and postsecondary programs to the effective teaching of both vocational content and English language skills, as well as other support services.

The National Center project was proposed to study how LEP students were being served in mainstream vocational programs throughout the country. The research team selected three secondary and three postsecondary sites for week-long visits and used both interview and observational techniques to study them. Its main purpose was to study (1) collaboration between vocational and English as a Second Language (ESL) teachers on behalf of LEP students, and (2) the impact of this collaboration on instruction.

Assuming the major burden of conceptualizing and carrying out all aspects of the project, Elizabeth Platt selected the focus on collaboration and instruction. Graduate assistant Jack Shrawder's background as a community college vocational instructor and administrator contributed to Platt's academic and high school teaching experiences. Principal investigator, Allen Phelps, helped conceptualize and support the study. Seeking community advice, the researchers convened a project advisory committee to discuss the goals and design of the project. Its members were the following: Michael Kelly, Coordinator of Extension and Continuing Education at Big Bend Community College in Moses Lake, Washington; Susan Kulick, Curriculum Developer for the New York School of Cooperative Technical Education; Don Cichon, Director of the Development Assistance Corporation in Dover, New Hampshire; and Tony Leong, Director of the Asians for Job Opportunities in Berkeley, California. Zoltan Ujhelyi, video consultant, helped prepare a video presentation entitled "The Vocational Classroom: A Great Place to Learn English."

EXECUTIVE SUMMARY

The Problem

Because of the rapidly growing and diversified number of youths and adults in the United States with limited English ability, the knowledge of effective instructional techniques for this population becomes necessary for more and more mainstream content teachers. This is particularly true in vocational education if the field expects to contribute to the changing needs of the American workforce. To fully realize the potential of these students, however, some combination of faculty collaboration, school resource reallocation, and staff development is needed.

Research Purposes and Question

The major purposes of the study were (1) to describe aspects of within-school collaboration on behalf of LEP students in mainstream vocational classrooms, particularly that between vocational and ESL faculty; and (2) to describe effective instructional practices with vocational LEP students. The major question was, "What is the impact, if any, of this collaboration on instruction?"

Activities and Research Issues

The research project involved the following activities:

- soliciting information about vocational programs serving LEP students in three secondary and three postsecondary sites nationwide;
- visiting three pilot sites to interview vocational and ESL faculty about relevant instructional and support issues concerning LEP students;
- designing an instrument to elicit this information more systematically in actual research sites;
- selecting and visiting the sites to conduct interviews and make observations; and
- analyzing and organizing the data in two presentation formats:

1. a video, *The Vocational Classroom: A Great Place to Learn English*, and

2. a technical report detailing the findings and their implications.

Since the research team was able to conduct week-long visits to six sites, the methods considered most appropriate were qualitative. The literature review and a pilot study established four major issues relating to collaboration for the LEP student in vocational programs: (1) the history of the program at each site and the perception of the problems in the instruction of LEP students, (2) the locus of power and responsibility for maintaining the program, (3) the nature of information and resource exchange among program participants, and (4) institutional and personal commitments to the LEP population and program outcomes. These constructs were made operational as a set of interview questions for vocational and ESL teachers, instructional aides, students, counselors, and administrators at each site. The questionnaire also included items about instructional techniques and materials in order to learn what value teachers and students placed on them.

Data Collection and Analysis

Before the team's arrival at each school, a contact person identified two vocational teachers, one counselor, and the ESL staff for interviews. The vocational teachers each selected one student as a focus for videotaping instruction. The team observed and videotaped the two teachers in normal classroom activities with their focal students, each of whom was also interviewed about different instructional techniques. Following the taping, both the vocational teacher and the LEP student individually viewed preselected segments of the videotape and were asked about their perceptions of classroom instruction and interaction. Data was analyzed to determine which aspects of collaboration most affected instruction in a positive manner. Some observation and taping of ESL and VESL instruction also took place. Effectiveness was considered to be both a function of good vocational education practice and of good language development opportunities.

Results

Two types of collaboration were found to exist between vocational and ESL teachers, involving two different roles for the ESL or Vocational English as a Second Language (VESL) teacher: the support role and the expert role. When ESL teachers played supportive roles, they often did so with skill and patience. Their vocational colleagues respected them and found that students benefited from their support. Generally, however, VESL teachers' effectiveness was mediated by lack of technical expertise, limited access to the hands-on environment, and removal of the vocational vocabulary from its real world context. Ability to achieve language teaching objectives in vocational classrooms was hampered by noise, lack of time, inadequate space, and other less-than-optimal conditions. Most importantly, ESL teachers' long-term language teaching objectives were subsumed by their need to handle communication breakdowns or to prepare students for tests, thus requiring content rather than language emphasis. Finally, although experienced vocational teachers in these working relationships often made their own language comprehensible, the presence of a VESL support person appeared to have little impact on vocational instruction, since few activities enhancing language comprehension and production were observed.

On the other hand, when ESL specialists shared their expertise with vocational teachers, the resulting impact on instruction was considerable. At one site a curriculum development specialist had worked with vocational teachers to produce user-friendly curricula. The process of creating curricula helped vocational teachers analyze and systematize their technical knowledge. As a byproduct of the collaborative activity, they became more aware of instructional language and began making adjustments. At another site, an ESL consultant taught vocational teachers information about language, culture, language teaching techniques, and curriculum development in a staff development course. These teachers subsequently taught courses in technical vocabulary in their own fields. The teachers were observed using a number of effective language elicitation activities. In all cases, students were not only learning terms but using them in typical vocational classroom discourse. Students' evaluations of these courses were overwhelmingly positive, almost all reporting significant gains in their confidence and ability to comprehend and use English.

A surprising finding of the study, then, was that the existence of ESL support or collaboration was neither a necessary nor sufficient condition for quality instruction to LEP students by vocational teachers. Rather, it was the quality of the knowledge about language learning and language use that vocational teachers employed in the classroom that made the difference.

Recommendations

The team learned that vocational classrooms can be ideal natural settings for English language development when vocational instructors exploit the potential for language learning. Effective vocational education becomes effective language instruction when techniques designed to elicit meaningful discussion from students are employed. Collaboration on behalf of LEP students is effective when the collaborators share their vision and expertise about good vocational education and good language teaching. When vocational teachers improve skills through staff development, they need less VESL support and collaborative activity. Thus, VESL teachers can concentrate on other areas of vocational language development. The following are specific suggestions for both kinds of teachers:

- Vocational teachers can learn ways of enhancing comprehension and eliciting oral language use from students by providing opportunities for students to
    - develop vocabulary through use of flashcards, illustrations, and labels;
    - describe objects and materials;
    - explain processes, procedures, and functions;
    - give and receive directions;
    - ask and answer questions;
    - troubleshoot problems encountered in the work; and
    - participate in the discourse of the vocational classroom.

- ESL teachers who support various vocational programs despite lack of content knowledge can nonetheless provide valuable language teaching when they
  - help make comprehensible the vocational classroom language using video- or audiotaped portions of class lectures to locate sources of difficulty;
  - practice vocabulary by having students explain concepts, functions, or procedures, not simply recite words and definitions;
  - work with students in the vocational classroom if appropriate and conducive to learning;
  - help students locate and comprehend information from printed materials or visual displays; and
  - assign writing tasks similar to those required in the occupation for which the student is being trained.

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INTRODUCTION

The purposes of this section are to provide a rationale for both secondary and postsecondary programs in vocational education in order to expand their current services to students of limited English proficiency and to briefly explain how these students are currently being served.

Population Characteristics

The immigration and refugee population, most of whom are limited-English proficient (LEP), is growing rapidly in the United States and is affecting the nature of larger American communities significantly. According to census data between 1980 and 1989, the total number of admitted immigrants grew from 530,639 to 1,090,924, a steady increase having occurred until 1988, followed by a marked increase of about 400,000 in 1989. The percentage of immigrants in the total population was 4.4% that year (U. S. Bureau of the Census, 1991, Table 5); yet, immigration data does not take into account illegal immigration and the previously resident population limited in their ability to speak English. In 1980, an estimated 6.8 million LEP adults lived in the United States. That figure is projected to be about 17.4 million by the year 2000 (Willette, Traub, & Tordella, 1988). Accompanying this significant increase are educational and occupational deficits, poverty, and legal problems. However, despite these difficulties, the immigrant population represents an important potential contribution to the American workforce.

Yet, the nation has shown insufficient resolve in providing educational and training opportunities for children, youths, and adults whose English-speaking skills are limited. Of the young people from fourteen to twenty-four years of age who dropped out of high school in 1989, twenty-eight percent were Hispanic, a rate which has been holding steady for the past several years (U. S. Bureau of the Census, 1991, Table 257). An even more startling statistic is that students from homes where a language other than English is spoken drop out at a rate of forty percent, compared with ten percent in monolingual English-speaking homes (Steinberg, Lin Blinde, & Chan, 1984). Limited ability to speak English also places LEP students at a particular risk of failure in postsecondary education.

Workforce Trends

A dramatic increase in the number of Hispanic workers has occurred over the last decade. In 1980, 6.1 million persons of Hispanic origin participated in the civilian labor force. There were 9.3 million in 1989, and by the year 2000 that number is expected to increase to 14.3 million (U. S. Bureau of the Census, 1991, Table 632). Refugees from Southeast Asia, Africa, Eastern Europe, and islands in the Caribbean contribute substantially to the influx of new Americans. In *Workforce 2000*, Johnston and Packer (1987) claim that the largest share of the increase in the population and workforce since World War I will be immigrants, many of whom will be unable to realize their maximum potential as workers because of limited English-speaking skills and few opportunities for occupational training.

Johnston and Packer (1987) discuss four key workforce trends expected to emerge as the next century approaches. First, the American economy should thrive because of growth in productivity, strong exports, and an expanding world economy. Second, the rate of manufacturing will continue to decrease while service industries will experience most of the job growth. Third, workers will become older with a higher proportion being both female and disadvantaged, and their numbers will continue slowly to grow. The total workforce is expected to grow by only one percent annually, the slowest growth since the 1930s, and only thirteen percent of new workers will be native white males by the end of this decade. Finally, service industry jobs will demand higher levels of skills, which will result in more joblessness for workers with lower skill levels. Few jobs will be created for those who cannot read, solve mathematics problems, follow directions, or function as team members. Such requirements could mean fewer opportunities for the LEP population in the future.

These four trends illuminate the converging economic and demographic forces affecting the immigrant population. The larger communities located in states in the northeast and southwest regions of the United States will be markedly affected by this change unless adequate means are found to serve the educational and social needs of this population. Yet, the immigrant population presents diverse educational needs, with individuals typically differing from one another in educational preparation by eight grade levels or more. It is especially important for this range of variation to be reflected in flexible programming for the LEP population in the schools.

LEP Students in Vocational Education

General Conditions

Vocational or technical education is one viable option for a large segment of the LEP population, as the various offerings in this area can encompass a wide range of skills and abilities. While in the 1950s eighty percent of immigrants came from European countries where levels of educational achievement were generally high, in the 1970s and 1980s more people began emigrating from Mexico, the Philippines, Korea, China, Taiwan, Vietnam, India, Jamaica, the Dominican Republic, and Cuba, the less economically developed countries (Friedenberg, 1987). This pattern is concurrent with the shift in the need for better trained and skilled workers in the American workforce, a shift which has forced many immigrants into lower economic strata. In addition to learning survival English, immigrants must also be provided skills training for entry into better occupational careers. Hence, vocational education can be at the forefront in recruiting and training this growing segment of the population, providing LEP students with a chance for economic and social advancement.

A recent nationwide survey of vocational programs found the level of services to LEP students in vocational education to be minimal (Council of Chief State School Officers, 1987). The survey revealed that provision of interpreters and tutors was the most common service to LEP students. A minority of states reported that remedial instruction in basic skills was offered, but methods of delivery of basic skills and vocational content were not explained. Further, the survey found little cooperation between state education agencies and vocational education units in the creation and implementation of teacher inservice efforts focused on LEP students. Respondents in twenty-two states reported that at least one inservice program had been initiated, covering such issues as ensuring access to programs and improving the vocational teacher's ability to serve LEP students. Unfortunately, most states listed no more than one such staff development activity. Further, collaboration between vocational education units and ESL or bilingual programs to produce quality inservice programs was seldom reported. With respect to access, demographic data suggests that only eleven percent of the total number of LEP students enroll in vocational education. Those students are concentrated in trade and industrial programs, home economics, and office occupations. LEP students are underrepresented in health, technical, cooperative, and apprenticeship education programs. The low enrollment of these students in vocational education suggests a lack

of language and support services to address the special needs of this population (CCSSO, 1987).

Friedenberg (1987) claims that unsatisfactory conditions exist in several areas of vocational education for LEP students. In the area of program evaluation, a lack of accounting procedures and techniques makes it difficult to know exactly how vocational education is serving LEP students. With respect to LEP student assessment, vocational programs tend to use standardized English reading tests. By their construction and content, these serve as exclusionary rather than as diagnostic instruments. With respect to recruitment, good information about and advisement for vocational programs is often unavailable in students' home languages or in appropriate formats and venues. Finally, in the area of instruction, vocational educators cannot adequately serve the needs of LEP students without support from ESL or bilingual instructors. To remedy these flaws, Friedenberg suggests that vocational program personnel should administer testing and interviewing processes geared to this special needs population. These processes should evaluate literacy in both English and the native language, vocational interest and aptitude, and basic skills inventories in the native language. Counseling staff should not only make materials comprehensible to the students, but they should also help LEP students select programs as these students often have a much narrower range of knowledge about existing occupations than American students. Instructors should be given staff development, as well as on-line support in modifying instructional strategies and materials in an appropriate manner. Effective modification should substantially aid the LEP student to learn the vocational content of a course as rapidly as possible.

Specific Program Components

Specific program models to meet the needs of LEP students were created from the 1976 amendments to the Carl D. Perkins Vocational Education Act. This act provided financial assistance to the states for vocational education programs in two areas: (1) special populations and (2) program improvement. One half of the money allocated was directly spent to support targeted special population groups, among those the LEP student population. Several different ways of serving students in vocational programs have been implemented, the bilingual vocational training model, described later, being the most comprehensive. Although a major component of this model is the provision of instructional and other services in the home language of the students, the main purpose of this study was to discern how LEP students were being served in mainstream English

settings. Therefore, after briefly discussing home language instruction here, little more will be said of it in this report. The thrust of the discussion will be on the other two instructional components: English as a Second Language (ESL) or Vocational English as a Second Language (VESL), or vocational instruction. VESL and vocational instruction are discussed in greater detail in the section titled, "Instruction."

Bilingual Vocational Training

The Perkins Act provided funding for bilingual vocational training (BVT); instructor training; and bilingual vocational materials, methods, and techniques. Although funding for BVT programs depends on the presentation of convincing arguments that a ninety percent job placement would result from their implementation (J. Friedenberg, personal communication, June 1992), a BVT model has emerged from successful practices of the programs. This model contains seven major components: (1) recruitment of LEP students, (2) assessment of vocational interest and aptitude, (3) modification of vocational instruction, (4) development of VESL programs, (5) provision of counseling and other support services directed at the special needs of LEP students, (6) activation of job placement and readiness activities which stress workplace familiarization, and (7) coordination of services (Friedenberg, 1987). Since BVT programs are complex, they require the construction of management systems designed to promote the effective placement of instructional and support staff to serve the needs of the LEP student.

Home Language Instruction

Home language support is a strong component of the BVT and may also be encouraged in other models, though it is not universally promoted. (The reasons for this are beyond the scope of this report.) United States laws declare that schools must provide comprehensible instruction for LEP students (Lau vs. Nichols, 414 U.S. 563, 1974), although states differ according to how strictly they implement those mandates using a bilingual instructional solution. Some states, such as Massachusetts, mandate that schools provide home language instruction to all school age children, while others define "comprehensible instruction" as those activities which provide instruction appropriate to the student's level of English proficiency.

Studies of young children entering the primary grades have shown that children instructed in their home languages learn to read better than those instructed in an

unfamiliar language (Cummins, 1980). However, research on adult learners is presently inconclusive with respect to this issue. Aside from the legal mandate, several factors presently determine whether bilingual instruction is appropriate for adolescent and adult LEP students. These relate to the ability of students to perform successfully in a program and include educational background, English language proficiency, and levels of self-esteem and self-confidence. The impact of a strange language, an unfamiliar classroom culture, and difficult vocational material may be so overwhelming to some adolescent and adult learners that they might drop out before completing a vocational program. Therefore, some may benefit from the support of the familiar language and cultural input into their early training experiences.

English as a Second Language

Another component of many vocational programs is ESL. Teaching practices for LEP students are based on methodologies developed by ESL instructors using techniques developed in linguistics and foreign language education. Earlier models introduced in the 1950s (Fries, 1945) stressed the learning of formal language structures, but have been found inappropriate for instructing LEP students who must quickly learn enough English to survive in typical American work settings and who can ill-afford to study English as a separate subject for an extended period of time (Lopez-Valadez, 1985). General ESL programs teach all aspects of English grammar, vocabulary, and pronunciation step-by-step, from simple to complex. Survival and prevocational ESL courses teach students to find housing, read want ads, use public transportation, and write checks. Although this is a common approach in teaching English to immigrant populations, it does little to provide them with employment skills (Lopez-Valadez, 1985). In response, VESL has addressed these concerns.

Vocational English as a Second Language

The VESL course supports the vocational course by concentrating instruction on the English skills specific to the vocational program (Menges, Kelly, & Marti-Lambert, 1982). For maximum effectiveness, the VESL instructor should know the technical content of the vocational course and use language materials paralleling vocational course content. Ideally, both vocational and VESL instructors analyze and determine the specific oral and written English skills appropriate for the VESL course. The vocational instructor identifies tasks, safety precautions, technical vocabulary, teaching techniques,

and primary teaching materials, while the VESL instructor identifies language structures needed to understand and perform the tasks and selects appropriate language teaching techniques (Lopez-Valadez, 1985). Learning is enhanced when VESL materials are closely coordinated with the vocational materials. Some of these include technical vocabulary lists, flashcards listing operational steps and showing drawings and terms, large scale visuals, math worksheets, and pre-employment materials. Although Friedenberg (personal communication, June 1992) believes VESL to be a beginning program and Menges et al. (1982) conceptualize it as intermediate (when students have a command of the present and past tenses and a generic English lexicon), both generally agree that the level of English used in vocational classrooms with LEP students should provide a balance between formal school language and the colloquial language of the workplace.

Summary and Report Overview

In order to train and place LEP students on the job or to prepare them for additional training, vocational education must adopt some new strategies, methods, and materials. No longer can the vocational instructor teach students in relative isolation from institutional support services. Determining how to best serve LEP students is a complex task which requires a team of educational specialists consisting of ESL/bilingual teachers, culturally sensitive counselors, language-sensitive curriculum developers, and technical skills instructors. Serving this special population is indeed a challenge for vocational educators but one that can be met successfully in the coming decades by selecting the most appropriate approach for each instructional context.

This National Center for Research in Vocational Education (NCRVE) study has examined in detail the working relationships found to exist between vocational teachers and their VESL or ESL colleagues in both high school and community college sites across the country. It has further documented instructional practices in those schools and has attempted to find links in the relationships between teachers and the effectiveness of instruction for LEP students. Following a brief methodology section, these three issues are treated in their own sections. The final section draws implications for program planning from the findings of the study.

METHODOLOGY

In this section, the research methodology is explained, beginning with an overview of the development of the project and a review of the relevant methodological literature. The research questions are stated, and the means used to elicit data about collaboration and instruction are described.

Project Overview

In 1988, Allen Phelps and Rudolph Troike proposed to investigate effective instructional interventions for LEP students in mainstream vocational education programs and link these interventions to labor market success. However, since most vocational LEP programs have not been in existence long enough to have produced conclusive results, the study was not considered feasible. The project director, a researcher in second language acquisition, discovered that few studies had closely examined the instructional components of prescribed models to determine how those practices affected student comprehension and enhanced English language development. Based on her own experiences and a review of relevant literature, the project director assumed the working hypothesis that the teaming of vocational and ESL/bilingual personnel in the schools would have a positive influence on LEP students' success in vocational education and English language development through a variety of effective instructional practices. Specifically stated, the questions guiding the research were

- What intra-school collaboration exists between vocational and ESL/bilingual faculty on behalf of LEP students in mainstream vocational classrooms?
- What is the impact of this collaboration on instruction, if any?

Strictly construed, the term "collaboration" implies a mutuality not embodied in all the working relationships found in this study (further discussion of these and related terms are discussed in the section titled "Instruction"). "Effective instruction" is defined in terms of "comprehensible" input and output conditions. An interaction between teacher and student was seen to be comprehensible if the parties exhibited appropriate response to an initiated verbal cue. "Impact on instruction" could only be inferred.

With the project substantially funded, the researchers were able to visit six sites for approximately one week each. Each site was selected for at least two or three of the following reasons: (1) recommendation by state-level special vocational needs administrators, (2) longevity and long-term institutional support, (3) vocational teachers with extensive experience in teaching LEP students, (4) current working relationship between vocational teachers and language specialists, (5) presence of program level collaboration, (6) innovative instructional programming for LEP students, and (7) willingness of faculty and students to be a part of the research study.

Data about collaborations were collected using a questionnaire designed to elicit information from two vocational teachers and at least one ESL teacher at each site. To obtain supportive information, program administrators and counseling staff were also interviewed. Information pertaining to instruction was obtained by interviewing and observing the participants. Prior to site visits, each vocational teacher had selected one student who would be the focus of observation. Following the videotaping, both teacher and student were individually consulted about several preselected segments of the videotape to determine what each perceived to be occurring in the classroom with regard to instruction and interaction.

Based on these interviews and observations, the researchers were able to study in a qualitative fashion the tenuous connection between collaboration on behalf of LEP students in vocational classrooms and the effectiveness of vocational instruction to those students. Among the six sites, half of which were secondary and half postsecondary schools, several means of teaching LEP students were found.

Qualitative Classroom Research

In this section, a rationale is provided for the qualitative approach to the study, including a brief commentary on ethnomethodology in classroom language interaction studies. The research conducted was not strictly speaking ethnographic because the agenda was to seek certain pre-established phenomena (collaboration and effective instruction) and to determine a relationship between them (if any existed) and because no *a priori* claim was made that the contextual or cultural variable explained all the data. Further, the study was not entirely data-driven. Its implicit hypothesis was that a positive

relationship would be found to exist between the presence of vocational and ESL teacher collaboration and quality vocational instruction. The research questions were addressed, in part, by means of a questionnaire whose preselected items were derived from both a literature review and a pilot study. The experiment was designed to avoid strong constraints on alternative hypotheses and to generate new hypotheses for further study. Thus, the proper descriptor for the methodology of the study was "qualitative," a research paradigm that "permits objectivity in the form of interobserver agreement" (Chaudron, 1988, p. 16). This agreement was obtained by interviewing a variety of participants in vocational programming for LEP students and by observing those students with their vocational instructors. Observation of students with VESL, ESL, and bilingual teachers and aides also took place.

Advantages

The qualitative approach was favored for several reasons. The funding for the original proposal was provided assuming that on-site visits rather than surveys would be used to study these questions. The issues for study, power, commitment, and responsibility did not lend themselves to direct questioning but required skillful management of the questioning and repetition with a number of different participants. To collect detailed data about the inner workings of collaboration and its effects, trusting personal relationships were established with the faculty, administrators, and students, a feat which more remote methods such as surveys would not permit. The open-ended techniques allowed for detailed descriptions of relevant phenomena not possible when using a discrete criterion format (Long, 1983).

Limitations

Limitations of ethnographic research exist as well (Long, 1983). First, qualitative research is unstructured, with too many variables and too little control. For example, at some sites the organizational dynamic variable (i.e., the structure, mission, and commitment of the administration) was very compelling as a means of explaining the collaboration that took place. Yet, the institutional variable was not uniformly salient across the data, so few generalizations could be drawn about it. Second, observers are limited in their ability to see what exists, being predisposed to observe phenomena through their own value systems. Though the research team was balanced by having vocational and ESL teacher and administrator views represented, the project director and

her assistant found themselves adopting each other's visions for effective vocational and language instruction respectively.

Another problem in qualitative research is the potential distortion of the observed phenomena by the researchers' presence. Teachers prepared special instruction and undoubtedly spent more time with their preselected focal students than they ordinarily would. However, the nature of that interaction was probably not qualitatively different from what it would be ordinarily. Moreover, all those who were filmed were enthusiastic, though initially self-conscious, participants in the research. A final problem with ethnographic or other qualitative studies is that the observer places an interpretive framework on what is observed, if not during data collection, then at least during its analysis and presentation. The categories selected are in some ways arbitrary, and the data is open to interpretation using other categories and perspectives. Categories and patterns never fit all the data; some are always excluded. For example, although considerable data was obtained from interviews with counselors, little is reported here since the research questions did not focus on the guidance component.

Data Collection Procedures

Visits to each site involved considerable advance preparation and discussion with local personnel. This section describes the overall approach to the research and how each of the two main questions was investigated.

Initial Procedures

A letter including information about project purposes was sent to the contact person at each site (Appendix A). Participating school personnel were informed of the University of Illinois policies regarding the conduct of research on human subjects which assured them of their confidentiality and privacy (Appendix B). All teachers, students, and counselors were to be paid hourly, including the contact person at each school. Upon arrival, the team informed each participant of the project purposes, the importance of their participation, and the protection of confidentiality (Appendix C).

Collaboration Data

To investigate teacher collaboration, perceptions by vocational and ESL teachers were sought about their work with each other on behalf of their LEP students within the context of the school. Perception of the collaboration process throughout the research project was framed by four categories of phenomena obtained from the literature review and from pilot interviews at sites in Champaign-Urbana and in northern Massachusetts. These were the following:

1. *Program development*
   Background history of accommodation of LEP students, trends in the LEP population (in terms of size, educational and language proficiency levels, and circumstances of presence in the United States), access to program information, and assessment

2. *Authority*
   Decisions about instructional support, responsibility for provision of support

3. *Knowledge exchange*
   Nature of professional interchange, type of information shared, skills valued in team-building

4. *Commitment and outcomes*
   Program and personal teaching philosophy, expectations for students, program outcomes

A questionnaire with items designed to elicit information about the above factors was created by the researchers to obtain information quickly, assure uniformity of responses, and represent responses in a simple manner. Questions asked of the vocational and ESL teachers appear as charts in Appendices D to I. (Not all data collected was considered relevant for this report.) Those asked of administrators and counselors are in Appendices J and K. Student interview questions are in Appendix L. The questionnaire was subjected to further examination by eleven colleagues in vocational and ESL education and members of the advisory committee. The charts were filled out by the interviewers, with the respondents being given copies so that they could follow the questions closely.

Instruction Data

Interviews

The second component of the data collection relates to the research question about the nature of instruction. This question was answered by composite answers obtained on the faculty questionnaire and through the student interview. Both teachers and students were asked how frequently a certain technique or material was used and how valuable they thought it was in helping the LEP students learn the vocational material. Students were also asked who provided them with instructional support of various kinds. In all, nine teachers and ten students gave information.

Observations

Instruction was also studied by means of videotaped classroom observation and subsequent interviews with the participants. It was this data that most clarified the instructional component for the researchers. Two days of classroom instruction were observed and videotaped in each of the vocational classrooms. The video camera operator was instructed to focus on the teacher and the preselected student, particularly when they were talking or working together. At the end of the videotaping, the research team selected several segments showing interaction between the teacher and the focal student. The following day one researcher played back these segments to the two participants individually, asking them such general questions as "What are you saying here?" "What are you doing?" "What is the teacher asking you?" "What are you asking the student?" and encouraging participants to talk freely about what they had experienced.

This technique is called "triangulation" (Adelman & Walker, 1975; Kleifgen, 1986), since perceptions by two participants and the observer can be checked against one another. This technique allowed researchers to understand meanings that the participants in the teaching event had constructed, but it also incidentally emerged that it provided a way in which teachers could critique their own teaching.

Data Collection Problems

During the course of data collection, several problems emerged: (1) technical problems in data collection, (2) incomplete interview data, (3) lack of usefulness of some parts of the instrument, and (4) *a priori* assumptions about the value of collaboration between vocational and ESL teachers. This section discusses these problems and how they were addressed. Though each was a limiting factor, none was serious enough to sabotage the study.

First, despite the value of the video- and audiotaped data, some technical problems were encountered with the taping. Voice tracks were lost when microphones were not placed close enough to participants to obtain quality sound reproduction and when external shop noise occurred. Second, it was not possible to accomplish the full objectives at all sites because the contact person had not adequately informed all the participants or received total administrative cooperation with the research project. For example, at one site the preselected vocational teachers had been scheduled to be away at a statewide competition and could not be replaced on short notice. The contact person had not been informed of this situation. As another example, administrators from only three schools provided information requested on the administrator interview form. This problem limited the scope but not the overall conceptualization of the study. Third, the teacher interviews were very informative, but the quantitative information recorded on the forms was less valuable than anticipated. In some cases, respondents would have preferred more options for answers. Additionally, some items such as "Expectations for Students" might have yielded more information given a rank ordering rather than a Likert rating scale.

Finally, and most important, the collaboration questions about program development, power and authority, knowledge exchange, and commitment produced uneven data because not all issues were equally relevant at all sites. At some sites, vocational and ESL teachers collaborated more indirectly than had been determined in earlier interviews with contact persons. At another, vocational teachers learned content and techniques from an experienced ESL linguist hired from outside the college, so there was no within-school relationship between vocational and ESL teachers at all. Encountering this situation led to the realization that the original working hypothesis about collaborative efforts needed to be revised. Collaboration between vocational and

ESL teachers had been viewed as a necessary and sufficient condition for successful vocational instruction to LEP students. Since that was not the case, some of the questions designed with those assumptions in mind became less relevant. Nonetheless, findings that undermine basic assumptions often turn out to be more interesting and important than those that uphold them. Despite these problems, the questionnaire, in general, allowed for uniformity across the settings and ease of data collection and analysis. The open-ended nature of the questions permitted unanticipated information to emerge.

Summary

In this section, the qualitative framework used for the study has been justified as the most effective, considering the specifications of the proposal, the funding, and the research questions. The operationalization of the constructs, "collaboration on behalf of LEP students" and "effective vocational instruction to LEP students," and the means of measuring them were explained. Finally, methodological problems encountered in data collection were listed. Despite the occurrence of these problems, the value of the study is not diminished because the flexibility built into the research design allowed for them.

COLLABORATION

This section on collaboration begins with a brief review of the relevant literature and a definition of key terms. In the major portion of the section, issues of collaboration originally identified for the study are discussed: *program development, power and authority, knowledge exchange, and commitment.* This discussion sets the stage for the fifth section on the impact of collaboration on vocational education for LEP students.

Literature Review

If LEP students are to be mainstreamed in vocational instruction effectively, at least two kinds of knowledge must be brought to bear on the problems of effective instruction: (1) conceptual knowledge and skills of the vocational activity and (2) knowledge of how the second language difficulties LEP students face can be overcome.

Since usually neither vocational nor ESL teachers alone possess both, the collaborative route seems a viable option. The effective schools literature often highlights professional interrelationships in enhancing the curriculum, promoting student achievement, and establishing communication links outside the school (Steller, 1988; Wehlage, 1983). The collaborative component in BVT programs is seen as integral to their functioning (Friedenberg & Bradley, 1988).

Collaboration of Vocational and Special Education Teachers

In their research on programs for mainstreamed handicapped students, Eagle, Choy, Hoachlander, Stoddard, and Tuma (1987) found both obstacles to and opportunities for cooperation between vocational teachers and special educators. They reported that differences in background, learning style, values, and expectations of handicapped students sometimes impede cooperative efforts because vocational teachers are more inclined to uphold occupational standards while special educators instead view vocational programs for handicapped students as valuable because of their intrinsic rewards. Such differences in perspective have led to negative stereotyping and misunderstanding. However, because of low enrollments in vocational programs, students previously ignored or avoided are beginning to be recruited. Despite their differences, some teachers have established peer tutoring and team teaching and have increased other cooperative efforts (Eagle et al., 1987).

Collaboration of Vocational and ESL Teachers

Several practitioners in the VESL/BVT area have specified both facilitative measures and areas of mutual concern in establishing links between vocational and ESL teachers. Cichon, Harns, and Gimbert (1987) offer a variety of strategies to achieve collaboration such as logistic, managerial, and instructional. In addition, the Texas Education Agency (1985) specifies participants' roles in and products of collaboration such as Individual Education Plans (IEPs). Based on their experiences in implementing the BVT model nationwide, Friedenberg and Bradley (1988) portray the collaborative process between the vocational and ESL teachers as a delicate relationship, with (V)ESL teachers accommodating their vocational counterparts by making the initial contacts. In their view, for collaboration to be effective, it requires regularly scheduled meetings with an agenda, notes of topics discussed, and records of agreements made. They advise the development of a firm groundwork, which includes avoiding discomfort, sharing

backgrounds, and being open about feelings. This professional relationship should be characterized by commitments to respect time, to exchange resources, and to visit each others' classrooms.

Friedenberg and Bradley (1988) go beyond discussing the process of collaboration to detailing the information which participants should exchange. Clearly, by their account, VESL support teachers will assume the greater share of the work in this relationship. To initiate a VESL program, teachers first interview vocational teachers, observe extensively in vocational classrooms, and read vocational materials. During observation periods, the VESL teacher should note the conceptual content, determine what problems students are experiencing, learn about the work environment and the tools and equipment there, list the technical vocabulary, and read the text critically. To determine particular difficulties non-native speakers bring to the job, the VESL teacher should also visit future work sites, interview workers about language use, and contact job developers to determine their perspectives on job-related language needs. Thus, unless a team of people is available to carry out this task, the VESL teacher serving a number of different vocational programs faces the overwhelming task of learning about all of them. In the classroom, VESL teachers must further assist students to comprehend and participate in the vocational discourse and to use the technical vocabulary. (This always entails understanding some content, especially when a term labels complex or abstract processes or principles; e.g., series and parallel circuits in electronics.) Thus, in this literature, VESL teachers are seen less as sources of information for the vocational teachers than as sources of ongoing support (Friedenberg & Bradley, 1988). Although these authors suggest that VESL teachers impart knowledge about students' cultures and about VESL materials, they say less about language development, comprehensible input, and techniques to elicit meaningful output—areas of need for the vocational educator to be effective with LEP students, whether VESL support is available or not.

Other than discussions of the barriers to collaboration, or prescriptions for it, no mention has been made in this specific literature as to whether teachers independently envision the potential products of collaboration such as deep level knowledge exchange. Inherent in purposeful collaboration is the exchange of knowledge in a rich learning environment for teachers as well as students. However, the substantive goal of collaboration is to produce fundamental changes in instruction, which can only occur with structural change at the course design and curricular levels. As Brooks (1988) notes,

> The ESL faculty assumed they could get information from core course colleagues or vice versa. The idea of such exchange between "language" and "content" teachers without mutual consideration of the connections between language and content now seems naive and simplistic. A more useful addition to the proposal (with hindsight) might have been a collaboration between language and core faculties to structure courses or develop curricula. (p. 29)

In the VESL literature, no one has hinted that collaboration may not reap rewards. Yet in the effective schools literature as a whole, such discussion takes place. Viewing innovation in the school from a cultural perspective, Fullan (1990) cites research which questions the value of collaboration as an end in itself. Autonomy may in fact be the preferable mode under conditions in which time constraints and incompatible instructional goals are prevalent. In their discussion of collaborative cultures versus contrived collegiality, Hargreaves and Dawes (1989) claim that collegiality should be

> a tool of teacher empowerment and professional enhancement, bringing colleagues and their expertise together to generate critical yet also practically-grounded reflection on what they do as a basis for wiser, more skilled action. (p. 7)

This statement will provide a litmus test for further discussion of the various working relationships studied in the course of this research project.

Definitions of Key Terms

Before discussing the four issues identified in both literature and pilot studies, some terms will be defined which characterize relationships encountered in the study. For the most part, ESL teachers supported vocational programs. *Support* is defined as "to bear the weight from below," "to keep from falling or failing," and "to aid the cause of" (*American Heritage Dictionary*, 1982, p. 1222). The support relationship also implies *coordination*, "to place in the same order or class," "to harmonize in a common action or effort," and "to work together harmoniously" (p. 321). Coordination of schedules and resources is imperative when more than one teacher serves LEP students. Another aspect of the relationship between these two parties is *cooperation*, which also means "working together" (p. 321), incorporating the notion of a common purpose or goal. As will be seen, when goals are not shared, productive working relationships are difficult to maintain. The term *collaborate* is defined as "to work together, esp. in a joint intellectual effort" (p. 291). The term also involves the notion of exchanging information and content

knowledge. The truly collaborative relationships observed in this study incorporate these ideas.

The Dimensions of Collaboration

It seemed logical to assume that successful teaching of LEP students in vocational classrooms could only be achieved with the combined knowledge that vocational and ESL teachers brought to the task. Collaboration between them appeared to be the main way in which that integration of knowledge could be accomplished. Thus, to study collaboration, several issues needed to be addressed. Results of preliminary investigations suggested that four dimensions were relevant to understanding how collaboration and other cooperative relationships occur in the educational setting: (1) program development and organization, (2) power and authority, (3) knowledge exchange, and (4) commitment. The team's prior assumption that collaboration was a necessary (and possibly sufficient) condition to achieve conceptual and linguistic knowledge integration was not entirely correct. Effective vocational instruction was observed in classrooms where the instructors' language sensitivity was achieved, not in collaboration with their ESL counterparts, but through other means. In the next section, findings about the four issues are presented and conclusions are drawn about how the issues contribute to "wiser, more skilled action" (Hargreaves & Dawes, 1989).

Program Development and Organization

In this section, brief descriptions of major program components explain how staff functions on behalf of the LEP students and how programs are initiated and maintained at each of the six research sites. The ways in which programs have developed and are currently organized varies greatly. Program formats and personnel involved affect the type, amount, and structure of collaboration which occurs in the different programs. Over the years each site has approached the situation of its LEP students in a manner most suited to its own structure and clients and has developed its own philosophy and style. The purpose here is to determine what historical and structural factors contribute to collaboration among teachers and the instruction of students. The three high school programs are described first, followed by the three postsecondary programs.

The Bilingual Vocational Training Model

In one Southwestern school district, a program containing several components of the BVT Model had been implemented in two high schools for two years with federal support. With the funding, the centrally located vocational administrator provided a VESL teacher for each school, new materials for shops and staff development time for writing and language-cultural awareness training. In one school, the VESL teacher worked with mainstreamed LEP students directly in the vocational classrooms. Most of this support was on-line translation or tutoring in the language of the students. Although such support is not appropriately called VESL, mixed Spanish/English discourse was a frequent mode of communication in that community. This teacher's home base was a resource room where occupational materials for LEP students and their teachers were available. In the other school, the VESL teacher tutored at-risk students in all vocational and academic areas in her own resource room. She did not work with the newly arrived LEP students or the ESL staff. With respect to the establishment of working relationships, a summer inservice was attended by teachers, counselors, and administrators. Led by outside facilitators, it featured cultural awareness activities, discussion of LEP students' needs, and joint curriculum sessions. Daily VESL support was arranged in an informal and unscheduled manner. Counselors and administrators in both schools worked closely with the VESL teachers on behalf of the LEP students, providing assessment, home liaison, and institutional support.

Basic Skills Program for LEP Students

The second high school site was in a large high school containing several alternative programs, one of which was a vocational education unit. Beginning about ten years before the research took place, a bilingual vocational resource person had begun working with an increasing number of LEP students, many of whom were educationally disadvantaged. More recently, efforts of this teacher and other concerned bilingual staff had evolved into a basic skills program for LEP students having very limited educational backgrounds and traumatic personal circumstances. Administrative and school committee support for the program resulted in generous staffing for the program, although shifting political winds and unstable funding sources occasionally threatened its continuance. With the bilingual resource teacher in the role of coordinator, a cadre of experienced and talented multilingual teachers and aides offered content-based ESL, skills-based reading, and home-language math, social studies, and science (in Haitian Creole, Spanish, and Portuguese). For three of the seven periods daily, students also

participated in vocational classes. Bilingual aides rotated among the vocational classes to help students, and a cadre of community volunteers offered job preparation classes and individual tutoring in reading and other skills. A high level of collaboration on behalf of the LEP students existed among the basic skills teachers, their aides, and the volunteers. For one morning every week, they met with the vocational principal. An instructional aide who acted as liaison between the vocational classrooms and the team reported about such matters as scheduling and student performance. Thus, interaction among the vocational teachers and the ESL team was indirect, although instructional issues were occasionally discussed between vocational teachers and the basic skills coordinator.

VESL, Bilingual, Curriculum, and Counseling Support

The third high school site was a cooperative technical high school to which students were bussed from academic schools and attended for half a day. The program was started in the mid-1980s by a small group of administrators who wanted at-risk and LEP students to participate in meaningful vocational programs to assure the students more promising futures. Program components which supported the vocational programs included VESL, bilingual paraprofessionals, curriculum development, and bilingual counseling services. Typically, the percentage of LEP students in the total enrollment was about twenty-five to thirty percent. Most of the rest were either minority students or were from homes where languages other than English were spoken. Collaboration on behalf of the LEP students was mandated; each shop had one Spanish-speaking aide and access to other language and counseling experts who also helped with staff development and training. The extent to which cooperation occurred among this group of people varied from one classroom to another. Typical relationships involved a vocational teacher, his aide, and one VESL teacher who worked in the vocational classroom with small groups of students twice a week. Periodically, but not at any specified time or place, the teachers would discuss the progress of the LEP students, the current work, and the concepts being developed. The school counselor also assisted these teams with various types of support to the students. A key collaborative effort in the school was the development of technical curricula in the vocational programs, written together by vocational teachers and the curriculum development specialist.

Prevocational ESL Program

The first postsecondary site was a technical college in a small midwestern community. There a prevocational ESL program served a group of mostly Southeast Asian refugees, who constituted about twelve percent of the student body. Each student proceeded through four ESL levels and a basic skills lab before entering into a vocational program, where some students also continued to receive tutoring. Other services included recruitment, assessment, family and personal support, connections with other community agencies, job-seeking courses, and job placement after course completion. The program had been started by the present ESL teacher approximately thirteen years before and had been growing in prestige and credibility through the years. Its philosophy was supported by the administration, though much of the funding was provided from outside sources. The strongest and most cohesive working relationship on behalf of the LEP students occurred among the ESL teachers, the minority counselor, and the job development specialist. The latter two communicated directly with the vocational teachers upon initial placement and during job placement on the completion of vocational coursework. Ongoing instructional support while students were in their vocational programs was also provided by inexperienced tutors rather than by the ESL expert whose other duties kept her out of the vocational classroom. Thus, there was little discussion about technical language instruction between the vocational teachers and her.

Staff Development

The second postsecondary site was a technical college located in a metropolitan area serving a richly diverse student clientele from many parts of the world. Wishing to serve these students more effectively, and filling a need for the business and industrial community to find trained employees, the administration had sought funds for the staff development of its technical faculty. This solution was implemented, in part, because the college had tried the VESL solution two years before, but the LEP students had dropped the classes because they found them irrelevant and uninteresting. Consequently, at the time of the research, no collaboration was taking place among vocational and ESL faculties at the college. Instead, a thirty-two hour course was taught by an outside consultant with a doctorate in applied linguistics and extensive language teaching experience. During the course, the participants studied introductory linguistics and cultural and language information about the school's LEP populations. They also practiced a wide range of techniques used by language teachers and developed curricula for their respective courses (e.g., Technical Vocabulary in Fashion Design). At the time

of the team's visit, seven vocational instructors were each teaching a course in the vocabulary of their own technical areas. Unfortunately, although the college administration had supported the program wholeheartedly, it was unsuccessful in securing funding from higher levels to continue the project to the same extent after the pilot program had been implemented.

Technical ESL Course

The third postsecondary site was a community college in a large western city which had been admitting more and more LEP students in recent years but serving them with various levels of success. The particular group of concern at the time of the site visit were Japanese-speaking students who were experiencing comprehension and oral production difficulties in two of the technical programs. Teachers from those areas participated in a crossdepartmental collaborative effort to serve LEP students more effectively, and a third area was being anticipated at the time of the visit. Planning for the first course was initiated by the deans of both occupational and language/linguistics education. Their solution was a jointly developed technical ESL listening course combining the vocabulary of the two technical areas. The technical teachers and a counselor first visited a model program in another state where they learned about its comprehensive services and language teaching ideas. On returning, the teachers worked closely with an ESL instructor who created the listening course. Following the development of the course, however, little ongoing interaction among the concerned faculty took place and only passing grades on repetitions of the previously failed technical course would determine, albeit indirectly, whether or not the listening course had been successful.

Summary of Programs

These six program solutions varied in a number of ways. First, they differed in terms of whether language support was primarily prior to, or simultaneous with, vocational instruction. Generally, at the two sites where ESL programs preceded or did not directly relate to the vocational programs, those interviewed reported problems when LEP students enrolled in vocational classes. Some students still required support in those classes, although not all of them received it. At the other four sites, where the language and vocational instruction were tied more closely together, beginning level LEP students were nonetheless meeting success in vocational classes. This finding supports the notion

that under supportive situations, students can successfully pursue vocational education at early stages of language learning (J. Friedenberg, personal communication, June 1992).

Second, programs differed in the structure of relationships that faculty working with LEP students established among themselves. While most of them involved some cooperation and coordination, only curriculum and course development were collaborative, indicating the exchange of expertise. Instructional collaboration, instead, occurred more among members of ESL/bilingual teams in support of the vocational programs. (Examples of support and expert roles for ESL teachers will be described in the section on power and authority below.) While formalized goal setting and information exchange is recommended in the literature, most teachers in the study met informally with varying degrees of frequency and often about non-instructional matters. In a later section, specific examples of knowledge exchange are provided.

Third, programs for vocational LEP students originated either with a core of concerned faculty or by administrative mandate, and neither origin appeared superior in terms of the longevity of programs. The programs initiated by faculty presently enjoy administrative support, but programs do not always survive pilot stages or the loss of key faculty personnel (Fullan & Miles, 1992, p. 748). For example, the prevocational ESL program might not survive with all its accompanying services if the core faculty left. Nor do quality and positive results always assure the continuation of a program. The successful technical college staff development, jointly envisioned by faculty and local administration, enjoyed only limited support from the financially bereft state college system. Finally, top-down solutions do not always produce ongoing effects if faculty do not make personal commitments to those solutions. The provision of the administration-initiated technical listening course did not impel teachers into ongoing collaboration concerning the participating students' progress. Such a situation ultimately links to the question of who is responsible for the LEP students and to issues of power and authority. (The commitment factor is discussed in the last part of this section.)

Power and Authority

In this part, power and authority in the working relationships among vocational instructors, language personnel, and the school administration is discussed. This issue is extremely complex and difficult to determine directly, partly because of the difference between reality and perception. Yet, if collaboration as a tool of empowerment and

professional enhancement exists, it rests on a kind of mutuality in which both parties perceive themselves as equal contributors and recipients of information and services. Whether ESL teachers work with vocational teachers in support roles or as collaborating experts is a central issue of power and authority. This is eloquently revealed in the experience of one language specialist called Peggy, who described with great subtlety her evolving relationship with the vocational teachers in her school over several years. This relationship progressed in stages, including a support and an expert stage.

The Support Role

In the first stage Peggy called herself the "Handmaiden to the Gods" or the "Happy Stewardess." These tongue-in-cheek labels clearly indicate her awareness that, as a professional with a high level of expertise, she was uncomfortable in what she saw as a subservient position. During that period, she contributed to staff development, discussing such issues as what it is like to be an LEP student, how to simplify language, and how to understand and accommodate students' cultural backgrounds. At that time, she let teachers know she was available but could not mandate that they accept her advice or information. While this stage was characterized by the delivery of linguistic and cultural knowledge to the vocational teachers, Peggy said her efforts did not produce any observable effect. The principal, interviewed independently, confirmed this opinion. During that time, he noticed no incorporation of Peggy's knowledge into the classroom practice of the vocational teachers.

But Peggy was not the typical VESL teacher interviewed for this study. At other sites, (V)ESL teachers did not express resentment of their support role or other negative feelings, possibly because their knowledge in the field was not as extensive as hers. But in one high school setting, the potential for resentment by *vocational* teachers was anticipated by the central office administrator who selected a vocational teacher to provide VESL support. A native speaker of the LEP students' home language and member of the main ethnic group of the school, this vocational teacher had considerable credibility with the other vocational teachers:

> The teachers knew, hey, she's one of us, and she'll understand what we're doing. I think a lot of it is apprehension on the vocational teacher's part because . . . the academic teachers don't really know what you do in the vocational classroom.

The vocational/academic division mentioned above is a recurring theme in the data. While the VESL teacher was aware that the issue of territory and sphere of influence might be a problem in her school, she spoke of her role in a manner which indicated that it might be similar to Peggy's handmaiden stage:

> You have to be very diplomatic but . . . what I have decided is I am here to serve them, to serve the pupils, to serve the teachers, and I think if they see it that way rather than . . . I always try to facilitate and help them in any way I can.

The preceding is an explicit statement of the VESL teacher's role in the unidirectional dispensing of resources and support directly to the students. Since this teacher had less experience and training in VESL, she probably felt no resentment of the support role.

The Expert Role

The well-prepared ESL teacher with a Master's degree in the field brings a knowledge base which directly applies to the needs of teachers who work with LEP students. Though programs vary widely across the country, the following topics usually form their core:

- the structure of language (i.e., phonological, syntactic, lexical, and discourse);
- how languages vary, including knowledge of at least one other language;
- information about world cultures and the ways cultures vary;
- child and adult language development—similarities and differences;
- characteristics of good (and poor) language learners;
- language in its social setting (sociolinguistics) and discourse analysis;
- oral and written language processing;
- methods of teaching languages, including language teaching through content;
- ways of assessing language proficiency and progress; and
- tools to create curriculum, materials, and tests for language learners.

Given this knowledge base, ESL teachers can be rich resource persons in their schools, whether they are strictly teaching VESL or not.

In this study, a few ESL teachers with long experience and considerable training in language teaching, linguistics, language development, materials writing, or other specific areas of expertise were able to act in more than support roles with vocational teachers. Peggy's expert stage was initiated by a feeling that she deserved more respect than to be treated like a secretary. She established respect and credibility at the completion of her first joint project with one of the teachers, a curriculum guide for one of the subject areas. This process involved her organizing his knowledge and writing it in language the students could understand, which was better than that of the textbook in use at the time. The following are specific examples of the way she helped write this curriculum:

> I seem to have the ability to focus on an end point and listen to people digress, but after they've digressed, bring them back to the point where they would reach the end.
>
> When they told me globally what they wanted to do, I remember drawing a large circle and writing all these things within the circle and then deciding these were the major categories and these were the minor categories and then making sure that within each major category I got enough stuff, and then I would go back to them later on.

In the expert stage, when delivery of services was through a concrete joint activity, the vocational teachers' ownership of the product made a great deal of difference in the way her expertise was acknowledged. Peggy speculated that the teachers realized how their own lack of ability to use written academic language effectively could be offset by a colleague with that skill. They also knew that without their technical knowledge such a product could never result.

Several other byproducts came from the evolution of Peggy's contributions to the vocational program. For one thing, teachers accepted academic assistance. For another, her presence on the staff had an effect on their teaching: slower speech; clarification of terms; and more patience with, tolerance of, and understanding for the students. This simple illustration of Peggy's support and expert role experiences suggests that a collaborative role is possible when the ESL teachers' expertise can be maximized. It is also likely to produce positive effects on vocational classroom practices.

The Locus of Power

Another aspect of power relates to where it lies. Teachers on the same faculty may differ in their perceptions of whether the vocational or the language (usually considered academic) objectives have the upper hand in the school. In one of the schools, some of the ESL/bilingual staff suggested that the vocational teachers perceived them as being allied with the administration. A vocational teacher at that school confirmed this perception, seeing an alliance between the academics (language specialists) and the administration. Nonetheless, he saw them attempting to adapt themselves to the vocational values of the program:

> Since all the teachers here are vocational, and administration isn't for the most part, there's always that problem between the voc and the academic teacher or the administration. All of them being basically academic . . . we try to do things that relate to the real world, and that's always been the point of the program since the beginning.

According to one member of the language team, however, the vocational teachers perceived an alliance between the academics and the administration at the beginning of the program. She believed the vocational teachers did not express their concerns directly but as one overriding concern—safety, interpreting their concerns for students' safety as a rationalization for their reluctance to accept LEP students:

> [They were] concerned that LEP students who had never been in their classroom in such force before, could not understand safety rules in time to prevent them from bodily harm.

No direct evidence exists from the vocational teachers themselves about threats to their autonomy or authority. However, one of them elaborates on the safety issue with respect to LEP students:

> There are certainly problems, . . . that is certainly true in a vocational shop where safety is a problem, and in the beginning. . . . It takes more time; it takes more involvement, but it's extremely important. From time to time, where I think a student understands me, he's written down what I've written, and he's gone over it, and he answers me in the right way but really doesn't understand. So . . . safety is one of the primary concerns in this shop.

These statements may reflect differences in philosophical values rather than concerns over language support for linguistically diverse students. However, one can reasonably assume that if some of the vocational teachers did feel threatened, as their language

colleagues believed, it was in response to a perceived power block of the (academic) language support personnel and the administration.

Not all teachers perceived a power block of academics and administrators. A language staff member pointed to what she thought was a special privileged relationship between the vocational teachers and the administration. Her statement suggests that a vocational/administration instructor alliance effectively curtailed the work of the support staff:

> When problems arose, by and large, among all these people in pairs or in small groups or whatever it might be, and there were clashes or there was difficulty . . . the administration backed off. Because, and I'll tell you why I think they backed off . . . because it's very difficult to find vocational teachers in (name of city).

Possibly her evidence for this belief is what she saw as the administration's tolerance of the vocational teachers' intransigence with respect to the language and cultural objectives of the program.

Decision-Making Power

Another aspect of the power issue relates to who makes decisions. In cases such as the one described above, the school clearly mandates that teachers will use ESL, VESL, or bilingual support for their LEP students. Teachers respond variably to such a policy, some welcoming, others resenting it. Two teachers at another school very differently perceived who decides what instructional support LEP students need in the vocational classroom. The ESL teacher assumed vocational teachers requested support of bilingual assistance:

> I think the voc ed teachers have been the ones that have always said, "I need help here" . . . because if they need help with language or whatever they ask (name of principal). . . . I think I would certainly respect the decision of the shop teachers as to . . . whether or not they think the student can function.

Her vocational colleague, however, saw the provision of support differently. In the conversation, R is the researcher, V the vocational teacher:

R: Okay, they send an aide, but you never ask?
V: I have never asked. Never.
R: So, who would send the aide to you?
V: My administrators, I would assume . . .

R: So, somebody else makes the decision that this aide will come in and support this small group of kids, or large group, or whatever.

V: Someone else; that's correct.

The Locus of Responsibility

One aspect of the locus of responsibility is the level of expectation that the student will progress and achieve certain measurable objectives in a course. Who is responsible for the progress of LEP students' in a vocational program turned out to be a key issue in the research. This instructor expressed his frustration with a system that fails to recognize a need for LEP students to take longer to finish a technical program and predicted dire consequences if they do not:

> It might be a little hard line, but can we afford to mess around when we have technicians dealing with 747s flying at 30,000 feet? Can we afford to mess around if these people are costing us lives and dollars and that sort of thing?

Another vocational teacher was concerned about minimal standards and prerequisites:

V: My concern as a teacher, and I have had large problems here in the last eight or ten years since I've been getting the bilingual kids, is when I cannot communicate for whatever reason, or if I have a tough time getting through my question to the administration . . . with the bilingual students who, for whatever reason, cannot keep up, . . . do I (a) water down the curriculum so that they can meet or make a passing grade, or (b) do I keep the content of the curriculum as it has always been, meaning that I would in fact lose a lot of these bilingual kids?

R: So it was a question of whether or not to change the curriculum or lose the students?

V: Right, the problem obviously being, if I water down the curriculum, morally, am I in fact cheating the kids who I could be serving a heck of a lot better . . . what is the decision. What's happened over the period of years is that they basically . . . left the decision to me.

Part of this teacher's frustration also relates back to the issue of decision-making. Here is a decision he does not feel he can make alone. However, both instructors clearly face a problem very frequently expressed in teaching LEP students, their lack of ability to meet course objectives either because they do not have the necessary conceptual or linguistics skills beforehand or because they cannot demonstrate adequate mastery of the material while in the course. Despite bilingual and ESL services, these teachers did not express the belief that support would solve the problem. On the other hand, a language teacher

indicated that attitude was the main problem confronting teachers asking the "watering down" question:

> I think that if [a person] is willing to understand and see that the students that he has to serve have a completely different mentality, culture difference, all this stuff, and if he starts to understand that. And see the kids are very limited. They can never grasp that material through that particular, very technical language.

Another said that deficits in conceptual and/or linguistic background could be overcome by "greater flexibility," even to the extent of changing the curriculum so that the student could be successful and then building up from there. However, vocational programs differ in terms of how much change in curriculum can be tolerated, how much prerequisite knowledge is required, and how much concrete language, materials, and procedures are involved. Obviously, college-level programs impose greater expectations on vocational and technical students than high school programs. Nonetheless, the language teacher quoted above expressed the belief that the curriculum could remain the same, but with improved instructional methods, emphasizing the grounding of vocational material in applied problem solving. But he hinted that improvement in teaching skills was tied directly to teachers' knowledge of and attitude toward the students. Here is clearly an area where vocational and language specialists do not perceive the same problem, a philosophical one also inherent in the relationship between vocational and special education teachers, according to Eagle et al. (1987).

Knowledge Exchange

Another major topic discussed in the interviews relates to the exchange of knowledge between vocational and ESL faculty. The fact that some schools in the study supported collaboration between vocational and VESL instructors for the purpose of creating or adapting materials represents a concrete way in which the technical expertise of both vocational and language specialists can be combined, and the benefits extend beyond the daily support situation which most VESL represents. For example, it has been learned that products of the curriculum writing project have been passed on to other schools in the district.

Stated Need for Knowledge Exchange

Evidence exists that there are differences in felt need for knowledge exchange, varying from school to school and from individual to individual. A range of typical views is shown here. Some of the interviewees said they interacted little with other teachers in their schools. This vocational teacher expresses the belief that he does not need to learn much from the VESL teacher in order to teach his LEP students effectively:

> R: What about instruction, discussing alternative teaching techniques?
> V: No, what I've said so far, and not to be over egotistical, but I think I'm fairly successful and sure if something came up, I would do it, but we don't get together to discuss alternative teaching techniques.
> R: What about planning lessons and tests and getting them to study?
> V: Again, I pretty much do that myself . . . I figure out what I'm going to test them on, . . . and write out the test, I give it to [the ESL teacher] and she uses it and she has all the terms . . . so she helps them memorize what I want.

Although this teacher acknowledged the value of the VESL teacher to help students review terms or prepare for tests, he implied a lack of need for her knowledge about language development, linguistics, or other concepts central to the VESL teacher's knowledge. On the other hand, another vocational teacher in the same school reported several ways in which he had exchanged information with other teachers and aides at his school. For example, he had learned home background information from the counselors and cultural information from aides and ESL personnel. He had discussed alternative teaching techniques with his VESL colleagues and created written material with language curriculum specialists. In sum, vocational teachers across the sample expressed varying degrees of need for knowledge exchange with VESL or other types of language specialists. Knowledge transfer from ESL to vocational teachers differed not only in amount, but also in quality, from superficial to deep levels.

Levels of Knowledge Exchange

As implied above, the exchange of information at a deep level in most cases was unidirectional; vocational teachers taught course material to their ESL counterparts, who then made it comprehensible to the students. Much information exchanged in the situations observed was superficial, not requiring specialized knowledge related to one's professional training and experience. Many of the working relationships were strictly social; one ESL teacher reported that she "bopped in" on her vocational LEP students and their teachers from time to time to exchange greetings and to express interest in their

vocational projects. Other teachers exchanged information about a variety of student problems. Some required little specialized knowledge such as attendance, scheduling information, performance, behavior, peer tutoring activities, and special services. However, one of the vocational teachers, in describing her ideal collaborative model, wanted more substantive information from the specialists:

R: If you were in charge, would that be something that would be important to have, teachers across the curriculum working together?
V: Oh, absolutely.
R: What kind of collaboration do you see as important?
V: Well, everything affects us. Their reading skills affect the way that everything trickles down. We really should know what goes on all over. Their math is important to us. We have students who do not know that there are sixteen ounces to a pound. . . You always start from the bottom, and you should not have to do that.

Her concern about students' lack of prior knowledge, expressed by other teachers in the previous section, is also apparent in this conversation.

While language teaching skills were either not understood or considered necessary by the vocational teacher, their aides' ability to communicate with the students in their home language was highly valued. The following interview is with a bilingual aide (A):

A: I'm really needed, OK? And I feel good because . . . Now he's crazy with me, OK, and now when I'm not there. . . . He tell me "Man I [inaud]
R: [inaud] a little upset
A: Yeah, he was very upset, unhappy, and the next day when I came he told me, "Don't you ever do that to me. I can't live without you any more!"

Bilingual teachers who were also skilled in math, science, or a technical area were valued by their vocational peers. Occasionally, however, even if the vocational teachers acknowledged the expertise of this specialist, they might transfer the teaching burden to the specialist, rather than learning techniques or applying the knowledge themselves.

Commitment

A final factor affecting both collaboration and instruction in the participating schools was personal and institutional commitment to serving the needs of LEP students, though the specific nature of that commitment varied. The major way to determine commitment was through college mission statements, teaching philosophies, and answers

to a magic wand question. To the extent that goal statements were specific and that they coincided with implementation, one might expect that programs should ultimately produce tangible, positive results: high achievement by students, raised attendance and retention levels, and successful completion of programs leading to employment. However, since goals were not always specific, measurable, or internally compatible, no such direct connection could be made. Further, some programs had been operating for too short a period to make such a determination. The first example demonstrates one teacher's perception of one specific instructional problem shared by LEP students, his understanding of how it affects employment status, and his acceptance of responsibility for solving the problem in his instruction:

> A couple of times . . . the employer requested a good person, and we sent out the best, the most qualified that we had available; we were not considering the language as being a major problem. Technically, the person was outstanding, . . . but the employer became upset when he had difficulty communicating in an oral interview with the person, and the person did not get the job. So that alerted us, and the word got out because the employer communicated with us after the interview and so did the student.

Thus, to address this problem, this teacher began to accommodate his teaching to the LEP students' level of English comprehension and to promote its use in his classroom. He expressed confidence that instruction in communication skills through cooperative problem-solving activities would eventually help students prepare for both job interviews and future employment.

In other instances, participants perceive students' needs in a less-clearly defined way. This administrator explains that LEP students have two problems:

> One was the, is the, language challenge itself, that the students come in here not having the language in which all instruction is taught, so they have that language barrier to overcome. The second barrier which is, I think, as significant is the cultural barrier or the cultural conflict issue. Where instructors have expectations that students will behave like students are supposed to behave, but these students are coming from a culture that hasn't taught them how they're supposed to behave in relation to the expectations those teachers have.

However, while students' language needs were being addressed in the program, it was not clear either what the specific cultural concerns were or how the program addressed them.

The relationship among problem, mission, and implementation is not always clearly established. For example, in another school there seemed to be a stated mission and a covert one. The first seemed to be to develop students' ability to function independently in a rapidly changing world of work and to be contributing members of the community. The second, more covert, mission was to keep them as part of the school family, the faculty assuming the parental role. This dual mission is glimpsed in an interview with one of the college administrators. As the interview proceeded, the stated goal was eclipsed by the covert one:

> We're preparing people for the workforce, without a doubt, and how do you do that unless you have strong support from the industrial or the business community. It has to be; we have to work together towards some common goals, and we certainly do participate in those kind of undertakings right now . . . it's a time of change, and it is so swift. The demands upon the society and the people in the workforce are great.
>
> Take them [LEP students] through that process of development and then find, with appropriate testing and counseling, find programs that are of interest to the student where they can succeed and eventually become employed, and as employed members of society, everybody wins.
>
> And as far as the development of the whole person is concerned . . . their hands are held from the beginning stages through completion and . . . it isn't just the case of a student coming to the school to learn within a certain period of time and that's the end of it; you say good-bye and then you don't see them again until the next day. Their concerns, whether they be personal or they be family, whether they could be educational, are all taken into consideration.

Asked if she could wave a magic wand, another staff member (E) candidly expressed her sorrow about students leaving the community for jobs elsewhere:

> E: A ready-made job at the end of each one of their training programs right in their backyards, so we don't lose them.
> R: Why do you say "so we won't lose them"?
> E: Because by the time, you know, we've spent two or three years with them; they have become members of our family virtually. We've shared births of babies and celebrations, and we just hate to lose them.

The dichotomy in this mission is illustrated best in the experience of a refugee who went through a vocational program but was not hired outside because his verbal communication was incomprehensible to prospective employers. Instead, he was given a job back at the college, helping his former teacher. Faculty members felt this was a good

thing since the student could remain "in the family." There was not an opportunity to interview the former student to learn whether he felt the same way.

Conclusion

In this section, four issues pertaining to collaboration in vocational programs have been discussed: (1) program development and organization, (2) power and authority, (3) knowledge exchange, and (4) commitment. True instructional collaboration was found in cases where language specialists were viewed as experts, while in other instances VESL teachers played supporting roles to their vocational colleagues. This relationship involves a one-way information exchange, the language teacher being responsible for learning content from the vocational instructor and making it comprehensible to the students. As will be demonstrated in the fifth section, this type of working relationship was not directly linked to effective vocational instruction. However, the flow of information between vocational teachers and language experts produced positive results in two areas: (1) curriculum and materials preparation and (2) staff development for vocational teachers. Returning to the issues introduced earlier, when teamwork of some kind brings colleagues and their expertise together, teachers can and do engage in practically grounded reflection (Newmann, 1991). This, in turn, may lead to wiser, more skilled action (Hargreaves & Dawes, 1989). In the next section, several different instructional episodes illustrate varying degrees of "skilled action" within the framework of the literature about effective teaching in both the vocational and language fields.

INSTRUCTION

Introduction

The purpose of this section is to describe instructional episodes from both vocational and VESL classrooms observed during the site visits, situating them in the effective practices literature in vocational education, second language pedagogy, and education in general. As the main purpose of the research was to study mainstream vocational classroom instruction, observations in VESL, ESL, or bilingual situations were less frequent. Thus, remarks about instruction there must remain more tentative.

The effective practices documented here do not constitute the norm of the vocational instruction observed. A major point to be made in this report, however, is that *any* vocational classroom provides *potentially* rich language learning opportunities. First, vocational courses promise marketable skills, providing strong incentives for students to perform well. Second, although language development is a byproduct of vocational education, students learn that, if they fail to master the technical lexicon of their occupation, cannot discuss processes and procedures with supervisors and coworkers, and cannot interact effectively in either interview or informal work situations, they are less employable.

Third, vocational classrooms provide language opportunities at many levels of proficiency, and the functions of language are varied. When language-sensitive instruction occurs, students are expected to comprehend and say names of tools and equipment and explain how to use them. They must ask and answer procedural questions and participate in conversations during problem solving. The rich course content and complex concepts generate opportunities not only for analysis, synthesis, and evaluation, but for the higher levels of language use required to carry out those processes. Finally, when teachers and most students speak only English, as was the case in the mainstream classes observed during the NCRVE project, LEP students have no choice but to use English. Thus, with properly trained instructors, home language support and/or VESL assistance, and with requisite math and other academic skills, almost any student should be able to participate successfully in vocational education.

Although one would expect that VESL or other language teaching classrooms would also be rich language learning environments, the researchers found them to be less so than some of the vocational classrooms. In this and the next sections, some reasons are offered as to why this may be so.

Literature Review

As the year 2000 approaches, a major consequence of the changing nature of work in the United States is that students who are good with their hands but lack linguistic, mathematics, and technical skills will not find work that pays them a living wage. And although many current trends in education favor the student with limited ability in

English, the trends and practices are not apparent in all classrooms nor valued by all teachers.

Trends in Language Teaching

Until ten or fifteen years ago, the strongest influence in the language teaching field was a behavioral learning theory that stressed the accuracy of individual sounds, words, and sentence structures. The field more recently has been influenced by cognitive and communicative approaches, thus making its goals more compatible with current trends in content teaching. No uniform vision is conceived across the profession, although several current models suggest a trend toward language development in more realistic, student-centered, and function-oriented settings. In these contexts, paired and small group work are preferred to teacher-centered, large group instruction. These models include whole language (Goodman, 1986), the Natural Approach (Krashen & Terrell, 1983), communicative language teaching (Canale & Swain, 1980; Savignon, 1972), content-based instruction (Brinton, Snow, & Wesche, 1989; Crandall, 1987; Crandall & Tucker, 1990), VESL (Friedenberg & Bradley, 1988), and English for Specific Purposes (Swales, 1985), the latter three stressing the development of language skills compatible with concept learning.

Cummins (1980) distinguishes between Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP). While typical LEP students may have the BICS to function in *context-embedded* learning environments where recovery of information is possible because of the presence of visuals, demonstrations, or hands-on activities, they are less likely to have the CALP to enable them to succeed in *context-reduced* settings such as lectures unaccompanied by illustrations or discussion. Vocational programs usually contain both, the hands-on aspects of the course being more context-embedded, the theoretical aspects being more context-reduced and academically oriented.

Applying Bloom's taxonomy of cognitive skills (Bloom & Krathwohl, 1977), Chamot (1987) and Chamot and O'Malley (1987) promote a content-centered ESL program where vocabulary development, comprehension, descriptions, explanations, and opportunities to use the discourse of the content area can take place. According to Chamot (1987), the ESL classroom usually supports practice in only the lower level skills of recalling knowledge, recombining knowledge in comprehension, and applying

knowledge in social communication. Chamot and O'Malley's (1987) ESL curriculum emphasizes the higher order cognitive skills of analysis, synthesis, and evaluation, which, in turn, require more demanding linguistic skills and rhetorical strategies such as description, comparison, and argumentation respectively.

Three additional concepts are fundamental to effective instruction to second language learners: (1) acquisition-rich environment, (2) comprehensible input, and (3) meaningful output. The acquisition-rich environment (Ellis, 1990) is characterized by favorable input and output conditions in the classroom or other setting where a second language is being learned. (Strictly speaking, an environment cannot be acquisition-rich, as only people, not environments, can acquire.) Comprehensible spoken or written input (Krashen, 1985) is that to which learners respond appropriately such as following an instruction, answering a question, or making a comment. Comprehensible input was well-illustrated in this research in an individualized lesson with a Haitian Creole speaker who could read but not speak English. Her culinary arts teacher ascertained the student's comprehension by observing how she independently followed her carrot cake recipe and how she responded to the oral directions.

Beyond comprehending, learners in an acquisition-rich environment are given ample opportunities for speaking and writing (Swain, 1985). When they must make themselves comprehensible to others—by describing, explaining, initiating questions, or participating in conversations—they are producing meaningful output. The best illustration of meaningful output elicitation found in this study was in a small group role play among electronics students solving a problem together at the oscilloscope. The example is discussed in the next section.

Trends in Vocational Education

The vocational education field recognizes that several competencies required in a modern vocational program contain a language component. Recent trends in the profession stress such skills as the ability to interview for jobs, interact with other workers in both problem-solving and social situations, read a variety of print media, and interpret information on a computer screen.

One such instructional trend is toward integrating vocational curriculum with applied language, reading, and math skills (Dees, 1990; Grubb, 1991; Knell, 1990;

Rosenstock, 1991). Another is the development of problem-solving and critical thinking skills, those which knowledgeable technicians require in troubleshooting (Johnson, Foster, & Satchwell, 1989; Kolde, 1991; Miller, 1990). Rosenstock (1991) discusses specific ways in which vocational and academic objectives can be implemented, not just for vocational students, but for all students. Instruction can be organized around theme-centered curricula that require students to pose and solve problems, use or create tools, and work on individual or group tasks. In so doing, they must employ a wide range of linguistic, social, manipulative, and quantitative skills and knowledge. These trends are responsive to the fact that the skills required for the American worker of the twenty-first century are more sophisticated than earlier in the twentieth century (Johnston & Packer, 1987).

Programmatic trends include the articulation of vocational programs with outside-of-school experiences. Partnerships of school and business promote both process and structural change in education (Hoyt, 1991). Lewis (1991) discusses the benefits of 2+2 and apprenticeship programs. These opportunities are viable alternatives to strictly decontextualized academic experiences in which many students do not succeed.

General Educational Trends

Educators at the forefront of educational change are advocating restructuring of the schools that incorporate learning-by-doing strategies suggested by Dewey decades ago (1933). Resnick (1987) invites educators to consider that the acquisition of competence learned in outside settings may furnish referent points from which to draw applications to school learning. While in intra-school contexts cognition is individualized, mentalistic, manipulative of symbols, and generalized, in extra-school contexts it embodies shared cognition, tool manipulation, contextualized reasoning, and situation-specific learning. These latter conditions already occur in vocational programs. Although they are claimed to be fundamental to learning, they are not often found in school.

Newmann (1991) has responded to the call for school restructuring by clarifying its purpose in terms of student outcomes. In his view, that purpose must be to bring about "authentic achievement" (p. 459) which results when students produce, rather than simply accumulate, knowledge. Evidence for the superiority of knowledge application to knowledge accumulation is widely attested (The Cognition and Technology Group,

1990). Learners achieve authentically by engaging in disciplined inquiry, involving use of prior knowledge in acquisition of integrated new information. When authentic achievement is the goal, students also attain aesthetic, utilitarian, or personal value from school work. A critical component of this goal is what Newmann (1991) calls "substantive conversation" (p. 461). Sustained, continuous talk between students and teachers or among peers "provides the major crucible for practice, for seeking new knowledge responsive to the problem at hand, for trial, feedback, and revision" (p. 461). In real world problem-solving contexts, students go beyond reciting old information to performing a range of language functions, much as any work situation demands.

This view is compatible with that of science educators working within a constructivist perspective (Tobin, 1991; von Glasersfeld, 1988). Science teachers provide opportunities for students to engage in substantive conversation in the classroom, explaining to each other and to their instructors the concepts and procedures underlying their actions. Using what students say, teachers can infer what has been understood about the concepts being taught.

Vocational Language Activities

A wide variety of language development activities were observed in the course of the present study. In this section, a number of those activities are used to illustrate the points made above about cognitive language development, the "acquisition-rich" environment, and goals of authentic student achievement. Some of the activities were more successful than others in terms of those criteria, but each illustrates potential for effective language development in a cognitive context. The examples have been categorized according to the following language activities: vocabulary development, descriptions, explanations, student-initiated questions, troubleshooting, and participation in vocational classroom discourse.

Vocabulary Development

Although the mastery of vocabulary is not a higher order linguistic or cognitive skill, it relates directly to the utilitarian goal of preparation for a particular occupation and is fundamental to the attainment of concepts underlying those terms. Vocabulary acquisition consumes much of the energy of second language learners, as the instructors

described below recognize. Practice is most effective when individuals understand both the spoken and written word and make themselves understood by pronouncing and spelling it correctly:

- Understanding from first-hand experience in industry the importance of vocabulary mastery, a technical college machining instructor assigned periodic tool room duty where students, who were both requesting and distributing tools, were required to use precise names. A high school auto body instructor also assigned tool room duty.

- A high school marketing instructor interviewed in the pilot study reported that he had put a newly arrived Cambodian student in candy sales in the school store in order to "bombard" him with English. The student was required to ask what his customer wanted, listen to the name of the candy bar, find it, quote the price, take money, and make change. This was an excellent opportunity for the individual to respond automatically and quickly to the English spoken by his peers in an "acquisition-rich environment."

- A high school carpentry instructor considered his students' mastery of terms a top priority, so he often checked their knowledge of tool names and framing terms. During the site visit, he reviewed terms for the different types of studs used in framing a building and asked students as a group to supply the names of them. Although oral practice individually or in small groups would have been preferable during the review class, on the next day the instructor did give a written quiz, requiring the labeling of diagrams of the frames students had built in the classroom.

Descriptions

Simple vocabulary tasks such as those above can be made into descriptive ones, giving students who are limited in English proficiency an opportunity to go beyond the word and phrase level to connected discourse, fundamental to the task of engaging in disciplined inquiry. Although they are not producing new knowledge in Newmann's sense, they are producing novel sentences and connecting them appropriately. The examples below illustrate ways in which students verbalized the defining characteristics of materials, products, and processes typical of their chosen occupations:

- A welding instructor reported that he called on his students to recite information about the different kinds of metal alloys used in welding: name, color, density, malleability, conductivity, and other defining characteristics of the metals.

- A culinary arts teacher placed in front of the classroom a bulletin board showing pictures of three categories of seafood: crustaceans, mollusks, and fishes. On the board he had written the names of various seafood dishes. He then asked students to create menus using each of the types of seafood and to report them orally to the group. (In both these examples, small group work would have given individual students more practice.)

- A fashion design teacher described different kinds of skirt pleats after which she elicited students' descriptions of the pleats in their own words. (The teacher could have made the lesson more interesting had the students begun with their own observations, either as a class or in small groups. She could then supply terms as the students requested them for accurate descriptions.)

Explanations

The next several examples illustrate how instructors elicited, or tried to elicit, explanations from their students. Explanations about how procedures are followed or how processes are manifested provide students with practice in expressing temporal and causal relationships. When students explain how things work, they give instructors clues as to their understanding of the course content. This in turn lays the groundwork for substantive conversation:

- In a high school cosmetology practicum observed after the NCRVE study, three students, each having a different native language, were placed in a situation where two followed a step-by-step procedure for giving a facial. While one talked about and acted out the diagrams in the book, her partner gave the third girl the facial. This student occasionally asked for clarification or responded to the aide's questions about the purposes of each step.

- An auto body teacher engaged his students in preplanning the day's work at the beginning of the class period, asking a representative of each work group to report. The teacher's aim was to have students anticipate the need for equipment and materials and to discuss general points raised when discussing a particular

vehicle. For example, until after one car had been taken apart it was not known that there were hidden damages, thus causing the cost of repairs to exceed the original estimate. (An excellent follow-up to this lesson might be to have students role-play the customer and the auto body technician after hidden damages had been found. In this class, both students and instructor spoke a mixed variety of English and Spanish, reflecting the bilingual speech of the community as a whole.)

- A group of Japanese students in an aircraft maintenance technology program toured their shop with an instructor, who began by asking the group as a whole to explain the different safety aspects of the various equipment and machines. Upon waiting only a brief moment and hearing no response, he answered his own questions. After the first tour, the researchers asked the students to go around again, calling upon individual students to make the explanations and waiting for them to do so. (Since this was a review activity, the instructor would have been able to achieve the same result the first time around. Had he done so, he would have learned what safety features were still unclear and what terms students had not mastered.)

Student-Initiated Questions

A technique frequently used by language teachers in the past was to direct students to ask each other questions in a chain drill, as the vocational instructors in the first example below did. ESL teachers sometimes "prime the pump," encouraging students to ask questions through controlled practice at first and giving them the message that in the United States students *should* ask questions in class. When students initiate questions to teachers or peers, as in the second and third examples, they demonstrate that they have assumed responsibility for their own learning. Until learners initiate their own questions, they do not define their own problems and thus do not engage in what Newmann (1991) calls "substantive conversation":

- In a technical college where teachers had taken staff development in teaching LEP students, the following lessons were observed: an electronics class where students asked instructor-prepared questions about circuits, a fashion design class where students asked each other questions about pleats, and a graphics class

where students asked about the descriptive characteristics of packaging containers.

- A high school electronics instructor invited two Chinese-speaking students to his desk after the class lecture and directed them to ask questions about the material they had not understood. When one student indicated he did not know what an inductor was, the instructor demonstrated with the actual equipment. To explain the meaning of "iron core" in the inductor, he wrote the words, then he asked the other student for a translation. (Unfortunately, the final step was not taken: asking the student to explain "inductor" and "iron core" in his own words.)

- A technical college electronics instructor introduced several terms pertaining to the oscilloscope and a formula for measuring frequency. He then divided his students into groups of three in which they role-played the situation of a job-seeking technician being assessed by a supervisor; an observer was also present. (The technician who was demonstrating procedures to measure frequency was being asked questions by the supervisor and observer, which forced the technician to explain the procedure s/he had followed and use the terms related to the display and the equipment.)

Troubleshooting

Paired or group troubleshooting, or applied problem solving, is the activity par excellence of both vocational instruction and language development. It allows students to call upon skills of synthesis, evaluation, and analysis; requires the use of complex linguistic terms and sentence structures; and demands comprehensible output. As in the second example, actual substantive conversation can take place (Newmann, 1991):

- A technical college aircraft maintenance and repair instructor asked his Japanese-speaking student to explain how to find the source of a problem in a mock-up of an aircraft combustion heater. His purpose was to probe the student's knowledge of the inner workings of the heater, using both the actual hardware and the accompanying schematic diagram. Such activity is carried out frequently in the program in preparation for the state licensing board examination. Even though this student was quite limited in English, he could nonetheless satisfactorily participate in the problem-solving activity. Moreover, the instructor was able to determine needs for later reviewing or testing.

- An electronics instructor and a Vietnamese-speaking student were trying to locate a problem with a circuit the student was wiring. Suspecting that some of the connections were faulty near the beginning of the procedure, they used both the diagram and the actual circuitry to work through the problem systematically, conversing as they went. Although the activity in the first example was contrived, since the instructor led the student through the steps, in the second both of the participants were engaged equally in locating the source of the problem. (As expected, however, the instructor succeeded in locating the source of the problem first!)

Participating in Vocational Discourse

Vocational classrooms can be highly appropriate settings for language learning because they closely approximate natural work environments. For example, students in high school automotive maintenance and repair programs must fix cars with real mechanical problems. The automotive classroom, the cosmetology laboratory, and the kitchen all have their own patterns of discourse. LEP students, coming as refugees, immigrants, or foreign students, do not always understand how best to function in these settings or how to extract the maximum amount of information possible from them. Though spoken language abounds in vocational classrooms, LEP students do not automatically learn more of the target language there because the input is incomprehensible, because they never have an opportunity to speak, or possibly because either the expectations of teachers or the culture of the American classroom are not well-understood or valued by the students. For example, because the bilingual auto body instructor discussed earlier spoke the same language as his students, he also knew intuitively how they would respond to his assignment. On the contrary, the aircraft repair teacher who answered his own questions about safety features did not understand that his Japanese students would not respond unless individually told to do so nor would they answer his questions immediately.

Favorable conditions for students exist when they are given opportunities to speak English in situations as realistic as possible such as working in small groups on auto body work, engine repair, or circuitry. Under some circumstances, students may work with real customers, as in cosmetology salons, restaurants, or auto shops. The example of the student who was sent to the candy store is a fine example. Some teachers, such as the technical college electronics instructor mentioned above, assign students roles to prepare

for actual on-the-job situations, and others provide practice with job interviews such as was observed in a high school classroom of Haitian Creole and Spanish speakers. One of the most favorable settings observed is illustrated in this example:

- In a computer class with all Chinese-speaking adults in a community-based adult education program (a site not visited for the NCRVE study), the teacher had given the students a program to type into the computer. Several students found the directions difficult to follow, but they were encouraged to ask their classmates and the teacher for help. Although the researcher eavesdropped on several of the conversations, she heard only English being spoken. Everyone in the room was actively engaged in figuring out what to do and conversing in a lively manner about the program. When the researcher asked one student why she was speaking English and not Chinese, the student reported that if this were a real office people would be speaking English, and this was her only opportunity to use it.

Unfavorable conditions for LEP students exist when they either misunderstand or underuse the discourse of their classroom and/or when teachers fail to recognize students' difficulties. These examples illustrate ways in which students cannot adequately participate in the vocational discourse:

- A Vietnamese-speaking student in an automatic computer-assisted drafting (AutoCAD) class was not well-prepared. He could not find his materials, and his computer terminal was not working. Having interviewed the student beforehand, learning that he had tried to drop the class, the researchers suspected he was lost in the lecture. Nonetheless, during the lesson he engaged in several attending behaviors (i.e., looking for his homework, copying things from the board, logging on to the computer, and fixing his attention on the teacher), later acknowledging that he had missed most of the lecture. Yet, the student had not ever gone to the instructor personally for help. Instead, perhaps feeling the need to "save face," he avoided revealing his difficulty with the material. Until the instructor had seen the videotape of the student for several minutes, he did not realize how lost the man was. Had he engaged him in conversation earlier in the term, he might have recognized the student's limitations and compensated for them. (This lesson was observed during the pilot study.)

- A Vietnamese-speaking machine technology student at a technical college was experiencing difficulty understanding the teacher's lectures. Viewing a videotape of one lecture, the researchers noted that the teacher used highly idiomatic English. Expressions like "You'd never in your wildest dreams . . ." and "the whole schmeer" were used frequently in his classroom. When debriefing the student during the "whole schmeer" video segment, the researchers found that he had interpreted the expression as if it were a technical term, probably "sphere." This interpretation was reinforced by the teacher's gesturing in a circular motion with the tool he was holding. The student reported that he would have appreciated more help with the spoken input than with the textual material in which he was currently being tutored. Fortunately, on seeing the videotape of his own instruction, the instructor identified his frequent use of slang terms as a probable source of difficulty for his LEP students.

- In the same classroom, mainstream students occasionally initiated topics. For example, one student wanted to know whether a particular tool could be used to bore a rifle. From the video footage, it appeared that the LEP student was not listening to the discussion. Given more time, the researchers might have tried to learn whether the student assumed that student-initiated topics did not have to be attended to and that only teachers gave important information.

Summary of Vocational Language Activities

Most of the preceding activities are more illustrative of the *potential* of vocational instruction to LEP students than of actual practice. The examples have shown the rich natural language learning opportunities for those students. Although some of the instructors observed in the study had not learned to provide comprehensible input, others were able to do so. Furthermore, by making only small adjustments in their teaching strategies, they would be able to elicit greater amounts of meaningful output from all their students, a situation very favorable to learners of English. In the next section, lessons observed in vocational English classes will be described in terms of the same criteria: cognitive language development, the acquisition-rich environment, and goals of authentic student achievement.

The VESL Component in Vocational Education

Description of VESL Activities

First, it should be restated that most of the classrooms visited in the NCRVE study were vocational and not VESL or ESL settings so this fact could explain in part why the researchers found so few examples of language instruction in the current communicative or content-centered modes. Most lessons were teacher-centered, student responses were limited to one or only a few words, and form was emphasized over meaning, as Long and Sato (1983) learned in their research. For example, a VESL teacher observed during the pilot study gave extensive practice of the past tense in creating sentences about the popular ESL topic, "what I did yesterday." Not only was the content of less than central relevance in a vocational program, but the teacher's focus on form was probably misguided. The adults in this class had recently arrived from Chinese-speaking countries and hoped to learn job skills as quickly as possible. In other lessons, teachers controlled topics, initiated questions, and anticipated problems before they emerged. For example, in a Haitian Creole-English classroom, the teacher was dynamic and entertaining, but highly controlling of the input and output of the lesson so that students had only to supply answers to narrow questions, not explore the topic themselves.

Friedenberg and several associates have written extensively on the VESL support role the teacher might play in vocational education (Bradley & Friedenberg, 1988; Friedenberg & Bradley, 1988; Friedenberg, Kulick, Gordon, & Dillman, 1988). Essentially, in that role, the ESL teacher learns the technical material so that s/he can work with students who participate in many different types of vocational programs. The VESL teacher is told to accommodate the needs of the vocational instructor in a number of ways: (1) using teacher or textual input to create vocabulary lists for students to master, (2) helping students learn technical vocabulary, (3) selecting, for practice, sentence structures typically used in the class or in texts, (4) preparing students for tests, and (5) adapting vocational materials to the level of the LEP students.

Although in all cases the English instruction took place in conjunction with vocational programs, few practices promoted in the VESL literature by Friedenberg and her colleagues were observed. Ample support was found for Chamot's (1987) claim that many ESL programs fail to stress higher order cognitive or linguistic functions. Despite the abundance of comprehensible input in the data, no situations were found where

students described, explained, initiated questions, solved problems, or participated in connected discourse. This may find explanation in the fact that many teachers in the ESL field are still working in the old paradigm of word and sentence level practice. Extended discourse is still not found in many language teaching classrooms. Moreover, since no substantive conversation was engendered, no higher order thinking was invoked. The following are typical examples of both effective and flawed VESL instruction. Most are technical vocabulary lessons:

- A VESL teacher came to the electronics shop and helped students prepare for a test they would be given the next day. She had created definitions of the terms that were stated in a syntactically simple manner and checked them with the bilingual paraprofessional. After practicing pronunciation and defining the terms, she asked the students to state the definitions in their own words, thus eliciting meaningful output. She also provided practice with comparative adjective expressions.

- Another VESL teacher held a tool-labeling session for three metal-working students. Using a commercial worksheet with pictures of twelve carpentry tools and fasteners, she read the functions of each tool and asked the students to write the correct name beside each picture. These she wrote on the board as the students spelled them. The lesson would have given the students more oral practice if they had described the tools from the pictures themselves and then named them. Later in the lesson, the research team's video technician pointed out that a picture was mislabeled on the answer sheet and so had to explain the difference between a nut and a bolt! This incident provides the clearest example in the data of how the English teacher may fail to adequately support a vocational program because of lack of technical knowledge. It also raises issues of who is responsible for teaching technical language, however, and illustrates how removal of language from its vocational context renders it unrealistic, uninteresting, and sometimes wrong. These issues will be raised in the next section.

- In a listening exercise, the teacher introduced several terms pertaining to the history of radio then read a prepared lecture that used the terms. Afterwards, she read several multiple choice questions about the passage, and students marked their answer sheets. She read each question and set of responses twice, then allowed the students to request that several of the items be read a third time. In

addition to reiterating the point about the removal of vocational language from its context, this example also illustrates the preponderance of comprehensible input to the point of distortion of any real world task and the dearth of elicited output. In light of communicative classroom goals, one might well question the value of an ESL class in which LEP students hardly talk at all!

Problems with the VESL Component

The researchers concluded from the study that the way VESL was being practiced did not maximize the language teaching skills of the most talented teachers or relate closely enough to the real needs of the students for either vocational language learning in particular or language development in general. The following are several instances where the VESL component of vocational programming for LEP students was found to be problematic:

1. *Overlapping of responsibilities with bilingual tutors or other aides*

   Aides often fulfilled the function of (V)ESL teachers by learning vocational content, building good working relationships with vocational teachers, maintaining contacts with parents and the minority language community, and providing counseling services for the students. An aide's ability to speak the students' home language was especially valued by some of the teachers as was evident in the "I can't live without you any more" statement mentioned in the previous section.

2. *Lack of technical knowledge*

   In some cases, (V)ESL teachers worked with programs where they were clearly deficient in the technical material and were dissatisfied in doing so. In one school, VESL teachers were expected to learn content from ten different vocational programs and were concerned that they lacked knowledge in some of the areas. The nut and bolt example given above poignantly underlines this concern.

3. *Unsatisfactory nature of support role*

   As in the case of Peggy's "handmaiden to the gods" example, some ESL teachers find the support role too confining. As another example, knowing the language development needs of her students, the VESL teacher in the electronics classroom hinted she would prefer to pursue more rigorous teaching goals for them. Viewed

more globally, while the vocational teacher might assign students pages to read and questions to answer from texts, either because they believe students learn that way or because they find it an easy way to assign work, in actual work contexts people use print media and extract new information in very different ways (see number 7). VESL teachers who perceive this situation may respond negatively to supporting this less than ideal teaching method.

4. *Overlapping of responsibilities with vocational teachers*

According to the findings of the study, all vocational teachers interviewed believed themselves responsible for teaching vocational material, despite the lack of skills to make that material comprehensible to the LEP students. However, one ESL teacher interviewed in the pilot study said she had learned the plumbing codes of the State of Massachusetts on weekends so that she could explain them to her LEP students, clearly a task that was the responsibility of her vocational colleague. From an administrative standpoint, this was a misuse of the resources of the ESL staff.

5. *Taking initiative from students*

- In a support capacity to a content program, ESL teachers occasionally remove initiative from the LEP students themselves. As mentioned earlier, an instructional aide in one program rotated among all the vocational teachers to learn of students' problems, then reported to the ESL team. Thus, the students did not need to identify their own problems or ask their teachers for help.

- It is not the case that professionals working with LEP students fail to recognize the problem of dependence. A bilingual counselor at one technical site reported that he and other members of the ESL team always encouraged LEP students to ask their teachers for help but had difficulty getting them to do so. As interviews with the students revealed, few studied the material on their own, created flashcards, or made vocabulary lists. Clearly, fostering self-responsibility in LEP students is a skill needing attention in the field.

6. *Misassessing language needs*

VESL teachers do not always understand vocational students' specific needs, particularly if they rely on vocational teachers' statements and not on their own observations to tell them how to help the students. Associated with this problem is an often undue emphasis on the technical lexicon as opposed to assistance in understanding the overall discourse of the vocational classroom, an issue also noted by JoAnn Crandall (personal communication, November 1991). As noted in an earlier example, LEP students who had been tutored using the machining text would have preferred help understanding their instructor's colloquial language.

7. *Overemphasis on text adaptation*

- Although textbooks accompany many vocational programs, teachers interviewed in the NCRVE study reported they did not often use texts because none of the students (non-LEP as well as LEP) could read well. In only one classroom was a text observed being used, but it was one the instructor had helped to develop and was written at the reading comprehension level of his students. Moreover, other types of reading are required in vocational programs: measuring devices, schematic diagrams, recipes, instructions on packages, computer print-outs, and state building codes. Students must apply what they read to the work they are doing. For example, an aircraft maintenance student could find a thermostat on his schematic of a combustion heater, but could not locate it on the actual mock-up.

- Despite the fact that vocational teachers assign reading in texts, students tend to learn information in other ways. Several cosmetology students (observed after the site visits) were discussing a test they had taken, saying they had studied only the study questions and answers. Further monitoring of their conversation revealed that most of them obtained a great deal of technical information over and above that learned from the text from talking and listening to each other. In the NCRVE study, LEP students were observed teaching and being taught by their classmates. Some reported benefits from natural peer teaching. In the last section, ways VESL teachers might capitalize on peer teaching will be discussed.

8. *Drawbacks in the vocational context*

Although some of the problems discussed above could be solved if VESL teachers were present in the classroom with the students, this solution also has drawbacks. As with the VESL lesson observed in the electronics shop, the conditions were unconducive to language learning: equipment noise, limited attention span, and initial embarrassment on the part of students for being singled out for extra help.

9. *Translation*

VESL teachers occasionally performed as translators so they did not develop the vocational English language skills of their students. In one observed instance, a VESL teacher was translating instructions given by a word-processing teacher for an LEP student, but the task was one that could easily have been demonstrated by the teacher, possibly using same-language peers to assist her.

10. *Lack of impact on vocational colleague's instruction*

Probably the most significant concern is that, despite quality language instruction by some of the VESL teachers observed, little carryover of their language teaching techniques to the vocational teachers was apparent. In the next section, some ways will be outlined that will maximize the language teacher's expertise in relation to the vocational program.

In considering these issues, it might be argued that no attention has been paid to differences in English proficiency levels and that instruction to beginning level students should be markedly different than that to more advanced students. Yet, examples have been given of beginning level students performing sophisticated linguistic tasks such as troubleshooting a problem in an engine and explaining safety features of a machine. It might also be claimed that the skills of the individual teacher, rather than the nature of the support role, is to blame for some of the shortcomings of the VESL and ESL lessons observed during the present study. However, the VESL literature reviewed for this report does not stress some of the points raised above. For one thing, it places greater emphasis on word and sentence level skill development than on vocational discourse. Second, it does not stress the importance of metacognitive skills to encourage independence as does the English for Specific Purposes literature (Hutchinson & Waters, 1980) or the learning of study skills as found in the adult education literature (Cichon, Grover, & Thomas, 1990; Keely, 1990; Knell, 1990). Third, with respect to the actual content of the VESL

program, current research suggests that, rather than experiencing most of their problems with technical vocabulary, language learners require more assistance with generic and colloquial lexicon (Crandall, 1987), certain syntactic constructions appropriate to particular fields (Salager-Meyer, 1992; Spanos, Rhodes, Dale, & Crandall, 1988), and the spoken discourse of the classroom or workplace. Finally, in the area of simplification and adaptation, recent second language acquisition studies have ascertained that simplification of spoken input is a problematic issue (Chaudron, 1983). It also questions text simplification and adaptation, suggesting that authentic rather than contrived texts are preferable (Bernhardt, 1991). Observations made in this study have prompted the researchers to raise these issues in the VESL literature.

Summary

This section has presented examples of effective practices in vocational programs that both render instruction comprehensible for LEP students and assist them in developing the conceptual and linguistic skills to perform well in those programs. These practices were viewed in terms of major trends in vocational, language, and general education, trends that embody the value of "substantive conversation" by students in supportive, yet challenging, problem-solving contexts. While not all the teaching practices discussed here were maximally effective, they illustrated the *potential* of the vocational classroom as a rich natural environment for second language acquisition as well as for authentic achievement of vocational conceptual and manual skills. With slightly improved teaching strategies, most of the examples would have been exemplary.

Unfortunately, the observed VESL and other ESL teaching was not particularly effective with respect to the same criteria, although the researchers observed in fewer language classrooms than in vocational classrooms. The VESL and ESL lessons lacked cognitive rigor and featured teacher-selected rather than student-selected vocabulary removed from its vocational setting. Although these teachers supplied comprehensible input, they tended to do most of the talking, controlled the topics, and elicited only brief responses from their students. And their instruction appeared to be geared toward lesser rather than greater student needs. These concerns lead to the conclusion that it might be the support role as it is conceived in the VESL literature that could be reconceptualized.

However, despite the good intentions of many vocational teachers, they have neither the time nor the training to help LEP students develop target language skills so they must rely on the expertise of the ESL teacher to do so. The results of this research suggest new directions for the VESL teacher in the vocational curriculum. An elaboration of this role will be found in the last section.

THE IMPACT OF COLLABORATION ON INSTRUCTION

Introduction

In this section, the link is explored between (1) the presence of collaboration or other vocational/ESL relationships and (2) the effectiveness of vocational or language instruction. Factors contributing to effective instruction for LEP students are also discussed. In the final section, suggestions are made about forming working relationships that result in more effective instruction and that maximize school resources, teachers' time, and collective expertise.

The establishment of vocational/language teacher working relationships was not found to be linked to effective practices promoting language learning for LEP students. The absence of these direct working relationships did not necessarily negatively affect instruction. In fact, lack of accommodation to language learners in programs was also found in settings where working relationships had been formed. Most importantly, the most deliberate language development practices were found, not in the presence of collaboration per se, but where *information* about language teaching and learning had been acquired by vocational teachers. These conclusions are supported by data collected in regards to program structure and development, power and authority, knowledge exchange, and commitment.

Program Structure and Power

With respect to the working relationship between vocational and VESL or ESL teachers, program structures contributed to the strength or weakness of instruction to the LEP students as did issues of power, authority, responsibility, and decision making. The

impact of each of the six program structures, and the consequent power relationships found in them, are discussed briefly below:

1. *BVT model*

   Of the two high school programs studied, the structure of one program was conducive to effective collaboration because the teacher worked directly with the students in the classroom and had solid administrative support in doing so. At the other school, the VESL teacher was confined to her classroom rather than being allowed to work in the shops where she might learn the specific language and conceptual needs of the students. Further, the students served in this program were not LEP but other language minority students with academic and personal problems. Thus, the instructional goals of the program at this school were not entirely clear to the researchers.

2. *Basic skills*

   While the ESL/bilingual/special education unit functioned very well together as a team, there was little direct organizational and instructional contact between the vocational teachers and that group. Without such interaction, there was no opportunity for in-depth assessment of the effectiveness of the basic skills program with respect to the students' language and conceptual development in the vocational areas. Some of the vocational teachers also felt they had little decision-making authority concerning whether or how LEP students would be served in their programs.

3. *Bilingual, VESL, curriculum, counseling support*

   The structure was preconceived in such a way that all services would be provided at the classroom and individual student levels. Thus, it created ample opportunities for the evolution of team-building, although the VESL teachers were more involved in support relationships than truly collaborative ones. Since the vocational teachers were in the position of assigning tasks to their VESL colleagues, VESL teachers had only minimal input to vocational teachers' instruction of the LEP students. However, collaboration between experts did exist between the individual vocational teachers and the VESL curriculum specialist.

4. *Prevocational ESL*

This program was also characterized by a strong ESL team, but there was little instructional impact on the vocational teachers, and the main ESL teacher's time was engaged in non-instructional support functions rather than in the creation of more effective vocational language instruction. The administration supported the ESL program in spirit, but did not assume responsibility for funding or for improving vocational instruction through staff development.

5. *Technical ESL listening course*

In this program a top-down solution lacked the bottom-up support by the teachers to maintain contact on behalf of the vocational LEP students. Though vocational teachers and the VESL teacher collaborated on the content of the technical listening course, they did not jointly monitor the progress of the students with respect to their performance in the vocational course. Thus, no one could directly determine the effectiveness of the VESL intervention.

6. *Staff development*

Working relationships between vocational and ESL teachers at this school were bypassed because of differences in perceptions of LEP students' needs on the part of the two different groups. Thus, conditions were favorable for the shift of responsibility for technical language teaching from the ESL staff to the vocational teachers. The college-level administration financially supported staff development for self-selected vocational teachers.

Knowledge Exchange, Vision, and Commitment

In most of the programs observed, knowledge exchange was unidirectional from vocational to the VESL or ESL teacher, a result of the built-in non-mutual nature of support relationships as opposed to the relationship of experts. However, the content of the knowledge exchange is the true issue here. Unless teachers envision the fruits of the exchange of ideas from the best practices in both vocational and second language education, there is little point in establishing collaborative structures. If the only thing that distinguishes the former from the latter is the presence of comprehensible input at the expense of cognitive challenge, and if classes are characterized by teacher-centered

instruction with no problem-solving or group activity, no amount of collaboration will result in more effective instruction for the LEP students.

Other Contributing Factors

According to the findings, effective vocational instruction could be attributed to several factors other than the working relationships established between vocational and VESL or ESL teachers. All of the following contributed to effectiveness: (1) considerable teaching experience, (2) the experience of being bilingual, (3) positive affect, (4) institutional backing, and (5) staff development.

Experience

Teachers with extensive experience used a variety of means to accommodate LEP students. As reported earlier, a culinary arts teacher constantly checked her LEP student's comprehension by observing how well she followed and/or repeated oral instructions and a recipe. Another experienced carpentry teacher, aware of both vocabulary deficits of LEP students and job demands by local employers, constantly quizzed students on tool names. An experienced electronics instructor tutored small groups of LEP students during each class period. Instead of nominating topics himself, he asked students to tell him what they did not understand. An aviation maintenance technology teacher engaged a very limited English speaker in a sophisticated troubleshooting activity. After each statement by the student, the teacher repeated what had been said for clarification and verification and then asked the student to tell him the next step in the process. Several of these experienced teachers spoke more slowly with less sentence complexity and with fewer colloquialisms than their less-experienced colleagues.

Experience alone did not always result in better teaching for LEP students. As reported in the section on instruction, several of the good vocational practices observed could have been better. And some teachers with considerable experience and skill in general ESL did not recognize and instruct for the *vocational* language needs of their students.

Bilingualism

Knowing students' home languages can be extremely helpful in teaching vocational content. Although teachers' opinions varied considerably in terms of the value they placed on the use of students' languages in instruction, often depending on guidelines and mandates from their respective states, most of the bilingual teachers observed also taught material effectively, accommodated students adequately, or said they understood students' problems as language learners. Of the twenty-five vocational teachers observed in teaching, thirteen were bilingual, and, of those, most could speak at least one of the languages of their students. Several of the administrators and counselors were also bilingual. Thus, the bilingual teachers could attribute some of their knowledge to having learned English as a second language themselves, although their attitudes rather than their teaching strategies may have been what distinguished these teachers as this quote from a bilingual paraprofessional seems to illustrate:

> One of the differences between a paraprofessional who is Spanish speaking, . . . is that we feel more for the kid that comes from another country, I mean Chinese, whatever. OK, I try to be sweet to him; I try to be, you know, be on their feelings, you know, 'cause I know the feeling.

However, simply being a speaker of the student's language does not mean that a teacher values that language for instruction, personal interaction, or for any other reason as was reported by one of the bilingual teachers not observed in the study:

> (One of the teachers says), "You can speak Spanish in your home; when you here, [inaud] you don't speak Spanish," and he say, "They have to learn English the way I did it. Nobody helped me out, you know; I went through this; they gotta go the same way.

Positive Affect

A third factor contributing to effective teaching of LEP students is positive affect. In virtually all classrooms observed and in most interviews, the researchers sensed a strong respect for and valuing of the LEP student. Administrators and counselors in these programs also understood and were sympathetic to LEP students' situations and learning needs. One of the issues they understood was the variation in students' educational, cultural, and language backgrounds, as this administrator revealed:

> Where instructors have expectations that students will behave like students are supposed to behave, but these students are coming from a culture that hasn't taught them how they're supposed to behave in relation to the expectations those teachers have. They come from a different culture.

A second issue was that, despite problems associated with the presence of LEP students in a school, the administrators viewed diversity as a positive contribution:

> Right now we have twenty-seven paraprofessionals in the program, all of whom are bilingual, and the languages that are spoken, I think right now at last count, we had nine different languages being spoken by paraprofessionals. . . . And fifteen different languages being spoken by kids coming into the program. So it's been very, very valuable.

And most of all, as this counselor suggests, many of the students come with concerns far greater than many of their American classmates, and these concerns must be understood and respected:

> C: There are some areas where the students are very reluctant to discuss what's going on in their personal life, and they do so only after long exposure to you.
> I: Trust?
> C: Yeah, exactly, developed a sense of trust, developed a sense of privacy, developed a sense of the student having confidence in you that you're not going to call up the government authorities and say, "Hey, look, I've got an illegal immigrant here."

Not only did teachers, administrators, and counselors express concern and caring for their LEP students, the students reported that the school personnel cared about them as the following statements suggest:

> Now, I feel very happy because [name] is very nice teacher because she try to give very nice class, not to sound very serious. No. She try to involve with the people. I mean, many times I have the support of [name]; he's a counselor. Everything for success in this school.

However, although positive affect is a necessary condition for student success in a program, it is not a sufficient one as these remarks from students reveal. In the first instance, the student has developed coping strategies to deal with a caring but difficult to understand teacher:

> I: All right, so when you look at the teacher and you nod your head this way, are you showing that you understand?
> S: Yes, sometimes I understand I nod my head.
> I: What if you don't understand, . . . what do you do?
> S: I just sit.

In the second instance, the student expresses extreme frustration with a teacher who, despite assurances he will help, has abandoned the student:

> The first week and the second week, two weeks, it's very impossible for me . . . and then what the name of the thing like the tool you use in there, confuse! The first time I cannot, I think I cannot, study any more.

Institutional Support

Institutional support to students included recruitment, assessment, counseling, employment search, occupational placement, welfare services, and financial assistance. Assistance in the vocational classroom included bilingual aides, VESL teachers, adapted materials, computers, and other modern equipment. In addition to these concrete types of support, institutional support to the LEP students could be determined by the extent to which its mission was inherent in the overall mission of the school and the extent to which the program would continue to function despite the loss of key personnel. This issue will be revisited in the sixth section. Finally, an institution best demonstrates its commitment to a program by funding it locally rather than forcing it to depend on external funding. The effectiveness of various components at the institutional level is discussed at the beginning of the sixth section on suggested implications of this research.

Staff Development

Although the researchers assumed initially that vocational/ESL teacher collaboration was essential to effective instruction for LEP students and proceeded to seek evidence based on that assumption, they found evidence that staff development was the most crucial factor and that the aspect of the original working definition of collaboration most directly linked to instructional effectiveness was knowledge exchange, as discussed in the third section. The course in which teachers learned information about language structure, dimensions of culture, language teaching techniques, and curriculum development was taught to the technical college teachers by an outside expert, not by one of the local ESL staff.

In addition to the factors that contributed to effective instruction discussed above, several other conditions made the staff development course at the technical college a particularly good one. First, the teacher participants, most of whom had been teaching for many years, were self-selected, and six of them were bilingual (though they did not know the languages of their students). Second, the course was designed around a needs analysis conducted by the course instructor. The teachers identified their own pedagogical limitations as well as the LEP students' instructional strengths and

weaknesses. Third, the grant secured by the institution paid the teachers for their participation in the thirty-two hour course.

The course itself was characterized by several knowledge and skills factors that contributed to the direct application of the course information to the teachers' subsequent instruction. Sufficient knowledge of linguistics was given to enable the teachers to understand students' language learning needs and sufficient knowledge of cultural dimensions to foster respect and appreciation of diversity. Practice was given in a variety of different language teaching techniques. Guidelines for curriculum development, time allotted to write curriculum, and feedback from the consultant prior to implementation were also provided.

Another set of factors was motivational and attitudinal. First, teachers were able to identify the students' problems themselves: inability to comprehend oral instruction, reliance on reading and writing at the expense of speaking and listening, reluctance to ask questions in class, unwillingness to interact with classmates, and unfamiliarity with both generic and technical terms of the occupation. Having thus identified the students' needs, the teachers were more motivated to learn specific techniques to overcome problems. Second, teachers were aware of labor market needs and concerns: inability to find jobs for LEP students, complaints about LEP workers' inability to communicate effectively with their supervisors and coworkers, and the mismatch between the overabundance of LEP individuals and the overabundance of job openings. Teachers realized they were responsible for creating opportunities for these particular students if their own programs were to survive.

Third, teachers recognized the limitations of their own instructional effectiveness: lack of understanding of LEP students' limitations, lack of skill to teach them effectively, lack of knowledge about language (from the linguistic standpoint), and a realization that the ESL personnel were not effectively teaching VESL. A final factor contributing to the application of the staff development goals was situational. Teachers were given a chance to teach self-selected LEP (and some non-LEP) students a course in the technical language of their field. For the most part classes were small, and they could proceed at a slower pace than they would use given a class of native speakers. However, some of the techniques were quite suitable for all vocational students and could be used effectively with classes of both LEP and non-LEP students.

Summary

It has been pointed out in this section that collaboration itself is not a factor essential to the development of effective teaching practices for LEP students in vocational education. Reviewing the four issues found to be related to the establishment of collaboration and other effective working relationships formed by vocational and VESL teachers, the researchers have concluded that the most essential is the depth and quality of the exchange of knowledge between the teachers. The section has also included five other factors that appear to influence instruction: experience, bilingualism, positive affect, institutional support, and staff development, of which the last is claimed to have the most direct and positive impact. Teachers who participated in staff development both provided comprehensible input and elicited meaningful output from their LEP students.

IMPLICATIONS

In this final section, implications of the study findings on vocational programs for LEP students are discussed. Although in research of six vocational programs throughout the United States no programs were found to be exemplary, a few program components could provide workable models, and a number of effective classroom practices have been recommended. As stated earlier, ideas for more effective use of ESL teachers' time and resources have also been derived from this research.

Program Components

The following are the components found to be the most effective in promoting effective programming for vocational students with limited English proficiency.

Staff Development

The program component found to be most direct and far-reaching with respect to effective instruction was the staff development model described in the previous section. The teachers who took the course not only accommodated their instruction to students' limitations by supplying comprehensible input, but also created opportunities for the students to use the English language by eliciting descriptions, explanations, and

questions, and by providing practice of technical vocabulary in situation-specific ways. In fact, these teachers were performing in much the same way an effective ESL teacher does but with the advantage of concrete, hands-on experiences for students to talk about. Thus, a cornerstone component of any such program should be quality staff development, whether in an existing comprehensive LEP program or separately. When vocational and other content teachers expand their teaching skills in this manner, they can understand and meet LEP students' needs themselves, relying less on help from others. Collaboration between vocational and language faculties with similar philosophical orientations about the language and conceptual development of their students then becomes a more productive venture.

Support Services

It should be obvious that staff development in the absence of a wide range of student support services is insufficient. Such services as the following were found at the sites visited in the NCRVE study: recruitment, assessment, career orientation, personal counseling, job preparation and placement, and home language support. Institutions would do well to adopt the BVT model or a similar model which helps students form liaisons with the rest of the school, the community, and the workplace. However, simply offering more external support to classrooms does not solve the problem of mediocre instruction. Substituting social services for instructional ones does not help LEP students learn the range of communication skills they require on the job.

Curriculum Development

A third effective component was curriculum development. Two of the language specialists interviewed claimed that the curriculum writing experience had been valuable for at least two reasons. First, the language teachers learned content from their vocational colleagues, and second, the vocational teachers saw ways in which their knowledge could be transmitted more efficiently and comprehensibly to students. A byproduct of this activity was claimed to be stronger, more appreciative relationships among vocational and language personnel. A cautionary note is in order. The writing and adaptation of materials can consume a great deal of time and resources; therefore, a needs analysis of the printed materials used in each program and the literacy requirements of each occupation must be determined. If only a small proportion of the acquisition of vocational content is through the use of written materials, then helping students learn to

read the materials, rather than adaptation, may be the better option. To help prepare students to function in occupations requiring literacy, vocational teachers should locate more user-friendly texts and supplement with charts, diagrams, and problem sheets instead of abandoning printed material. VESL teachers can then help students develop strategies for locating and using information from these authentic materials.

Bilingual Support

A fourth component observed both in research and pilot sites was the effective use of the students' home language by aides. Such aides were most highly valued when they (1) knew the vocational content and (2) spoke the language of at least some of the LEP students (in that order). At one pilot site an aide with several years experience recounted the history of her position in the school, one typical of those reported. The teachers once resented her involvement with the students and were afraid that, when she spoke Spanish, she was giving answers. Her commitment to helping the students actually learn the material, not simply pass the course, had to be demonstrated; she learned information from several occupational areas, talked frequently with teachers, and documented successes of students. Ultimately, positive results of the tutoring brought her respect, and the present team spirit between the bilingual aides and the faculty is impressive. Indeed, the use of students' home languages was accepted at all the schools visited, although home language instructional support was available only in the high schools and not in the postsecondary settings.

Remarks made earlier about comprehensible input also apply to bilingual instruction. While one might assume that students understand what they are told in their home languages, comprehensibility cannot be known in the absence of a particular student's output. When s/he responds by producing an appropriate response, coping with knowledge substantively, and ultimately using the target language to do so, the use of the home language in instruction can greatly facilitate early stage learning in a second language. The researchers observed exciting academic lessons in Haitian Creole and Spanish, but not in vocational instruction. The few instances of home language use by *vocational* teachers resulted in one word or nonverbal responses on the part of students. Thus, as in the case of both vocational and VESL instruction in English, the home language instruction was variable in quality across the study.

VESL Support

The VESL component is recommended when the VESL teacher not only supports the language learning potential for LEP students in the vocational program, but provides expertise in the form of new techniques or materials improvement to it as well. In the previous section, several problems with the VESL support concept were raised. If those problems are overcome, a skilled and visionary VESL teacher can be invaluable to a vocational program. In the next section several suggestions are made to strengthen the VESL teachers' role in vocational education.

The Roles of the VESL Expert

The researchers concluded from this study that vocational language teaching is the major responsibility of vocational teachers and that they should learn ways to enhance the language learning process in their own classrooms. Teaching vocational content implies teaching the language associated with it. Learning effective language elicitation and comprehension techniques is not difficult and is certainly possible given appropriate staff development. Nonetheless, the vocational teachers' major responsibility is vocational content with language teaching a byproduct. Thus, the role of the VESL *expert* is essential to the language development of LEP students. The following are suggested aspects of this role that maximize the expertise of the specialist while not requiring the mastery of large amounts of technical knowledge. Useful suggestions can also be found in Friedenberg, et al. (1988) and Bradley and Friedenberg (1988).

Leading Staff Development

ESL or VESL teachers could provide valuable staff development on a range of language education issues. General information from many of the topics listed in the third section is essential to content teachers who work with LEP students: information about language and its development, crosscultural skills, techniques for teaching languages, and tools for assessing language proficiency. Of course, the establishment of this role depends crucially on the relationship that the vocational and ESL teachers establish and on an administrative structure which fosters and rewards this and other collaborative ventures. Unfortunately, ESL teachers in this research reported few opportunities for giving staff development beyond sharing cultural information and teaching tips informally with their colleagues.

Observing in Classrooms

ESL teachers could observe in the vocational classrooms, employ their knowledge of discourse, and try to assess whether LEP students experience difficulties with specific technical language, the generic/subtechnical language, or the colloquial language in the classroom. As has been suggested in this report, they could also use video- or audiotapes to learn this information. Seeing interactions in the classroom informs the teachers about comprehension and about language use with peers and suggests interventions regarding teacher input and interaction with classmates. Observant ESL teachers can also spot ways in which students require help with printed technical materials, despite the lack of expertise to intervene themselves.

Teaching the Four Skills

Traditionally, the ESL teacher teaches the four language skills of reading, writing, speaking, and listening. The following are specific ways in which the VESL teacher can promote these skills. With respect to reading, VESL teachers can contribute to vocational materials development and modification. However, before doing so, they should conduct needs assessments of the vocational programs to determine how often and in what manner written materials are used. Before taking on the daunting task of rewriting or translating texts, they should teach students strategies for approaching as much of the authentic material as possible independently, drawing attention to the structures commonly used in technical prose (i.e., imperatives, passives, and complex noun phrases). With regard to writing, several valuable tasks could evolve from oral language experiences such as those described in the fourth section. VESL teachers could also help students use the relevant vocabulary, structures, and discursive style in memos, reports, or technical manuals typical of writing in the area.

With respect to listening tasks, videotaped lessons can be replayed to check listening comprehension and to review certain points taught. VESL teachers can identify colloquial expressions and slang and help students recognize when these expressions, rather than technical vocabulary, are being used. They can locate potential sources of difficulty with content on the tape and ask students to tell what they have understood, assisting them to frame questions for their vocational instructors. Alternatively, students can be taught to identify sources of difficulty themselves and, in small groups, help each other understand what is being said or done. Finally, as far as speaking is concerned, rather than performing the role of content tutors or instructional aides, VESL teachers

should use their skills to elicit spoken language. Instead of simply reviewing vocabulary and asking closed questions, they should help students use the technical terms in connected discourse and practice technical language in higher order cognitive functions (Chamot & O'Malley, 1987).

Collaborating with Vocational Colleagues

ESL teachers can become more effective collaborators with their vocational colleagues. This research has demonstrated that aides efficiently perform many of the logistic functions accompanying a cooperative program. Such activities as discussing attendance, scheduling activities, and attending to other organizational details consume time that teachers should be spending in instruction. In a well-managed school, these functions are delegated to those with less training and experience. Given planning time, vocational and ESL teachers could effectively integrate conceptual and linguistic skills. For example, the ESL teacher could prepare generic vocabulary lessons for future units of study in several related vocational areas. Second, both teachers could view videotaped classroom segments and discuss LEP students' conceptual and linguistic difficulties with the material. Third, teachers could use videos of themselves in the act of teaching to determine whether other strategies might help them teach certain terms or procedures more effectively. Fourth, they could set up peer tutoring or capitalize on naturally occurring peer relationships. In sum, effective collaboration maximizes a sharing of both concepts and methodologies from the vocational and language fields. As has been stated earlier, however, without a similar vision of the potential of the vocational classroom as a rich learning environment for language as well as concepts and skills, the collaboration between the teachers will bear little fruit.

Summary

The purpose of this research and of this report has been to explore two questions: (1) What collaboration exists among vocational and language teachers on behalf of vocational LEP students? and (2) What is the impact of that collaboration on instruction? The researchers have concluded that the presence of collaboration alone is not an indicator of effective instruction. Experience, knowledge of other languages, positive affect, and institutional support also contribute to teachers' effectiveness with LEP students. However, staff development of the sort provided at one of the sites taught the

participants to go beyond simply accommodating students' language limitations to planning activities for participation in substantive conversation. In this last section, ways have been suggested to enhance the language teachers' role in the vocational program. In designing activities to generate language production, in helping students comprehend the language of the vocational classroom, and in deep-level collaboration with vocational colleagues, the expert as opposed to the support role for the language specialist has been promoted. Finally, only teachers' collective vision of the potential of the vocational classroom for exciting manual, cognitive, and linguistic achievement will promote both effective instruction for students and collaboration between colleagues in a climate of mutual growth, respect, and support.

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APPENDIX A

Letter to Participating Schools

(Name of contact person), Coordinator
School District
Street Address
City, State, Zip

Dear (Name of contact person):

With reference to our recent conversations regarding the NCRVE research project, this letter is intended to request formal permission to conduct research in the (name of school district) and to inform you specifically about our plans. First of all, the project is sponsored by the National Center for Research in Vocational Education which is charged with the judicious use of Carl D. Perkins research funds to conduct studies on central issues in the field. This particular project is housed in the Department of Vocational and Technical Education in the College of Education at the University of Illinois. Our study seeks to learn in detail about the collaboration and exchange of knowledge between vocational and ESL/bilingual teachers and to assess possible consequences of this collaboration on student outcomes. This will be a qualitative study which uses interview, observation, and video techniques to collect data. Its results will be disseminated nationwide.

Your school system was selected for study after conducting a nationwide search for programs which have developed both the commitment and the capacity for serving students of limited English proficiency. So far, I have received preliminary information from you about various components of the program, and have appreciated your willingness to support our research. I assume that there are at least two vocational teachers with experience collaborating with the ESL/bilingual team on whom we can focus our major attention.

My graduate assistant, (name), the video technician, (name), and I are looking forward to spending a week learning about your vocational program for LEP students. My graduate assistant and I will be there from April 17th through the 20th. The video technician will be there from the 17th to the 19th. We would like to conduct interviews with vocational instructors, ESL/bilingual staff members, other selected faculty, and two preselected students. We also intend to observe in classes, using video- and audiotape to

record the classroom activities. The attached sheet includes specific information about the research purposes, agenda, and participants needed. We will offer to pay student participants a honoraria of $25 and the individual teachers up to $150, depending on how much time they spend helping us both ahead of time and during our stay.

Two other attachments are included. One is the University of Illinois Informed Consent form. The other is a questionnaire to be filled out by the administrator most likely to have access to the information collected. We will pick up this information when we come to the school. If for any reason you have concerns about the research, please call me immediately, and we will discuss them. I look forward to meeting you and your staff in April.

NCRVE Research Project:
Specific Purposes, Agenda, and Participants Requested

To accomplish our research purposes, we need the participation of the following people: two vocational instructors and one LEP student working with each, the tutors or aides assisting these LEP students, their ESL instructor, a counselor, the administrator most closely associated with the program, and a community member knowledgeable about and interested in LEP students in vocational programs. We will be speaking with the vocational teachers up to three hours, with the students and ESL teacher for two hours, and with the others for one hour. The research will involve four major components: (1) interviews with teachers and other personnel serving the LEP students vocationally, (2) interviews with the two preselected LEP students, (3) classroom visits with videotaping, and (4) the debriefing of selected video sequences from the previously taped classroom activity by the participants involved.

The two vocational instructors you select should fit the following criteria as closely as possible: (1) they have a history with the vocational program and experience working with LEP students; (2) they have worked with bilingual and/or ESL teachers to serve the LEP students resulting in such activities as modification of methods, adaptation of materials, use of peer tutors, or the like; (3) they are both willing and available to speak with members of our team from three to four hours at various times during the school week; and (4) they are willing for their class to be videotaped two class periods and debriefed about some segments on the tape. Our questions pertain to two situations: (1) program level information and (2) specific classroom situation information. In the latter case, we will ask the teacher to think about his or her instruction to the preselected student participant.

With respect to other interviews, we wish to talk with ESL and bilingual staff who work directly with the preselected students and their vocational teachers. We would also appreciate being able to spend about an hour interviewing a counselor, job developer, or similar staff member who can provide information about various services the school provides to LEP students, and up to one hour interviewing a member of the community (e.g., parent, business contact, board member) interested in the program.

The two vocational LEP students you select should fit the following criteria: (1) they are presently receiving some type of assistance related to the vocational class of interest (i.e., VESL, bilingual assistance, out-of-class assistance, methods or materials adaptation); (2) they are at least at the intermediate level of English and are willing to converse in English with outsiders; (3) they are willing to be videotaped, including use of microphones; and (4) they have time during the week to be interviewed for a total of about two hours.

We have two purposes for using video. The first is to determine, albeit in a qualitative and indirect fashion, something about the relationship of informed program adaptation and student performance. Thus, we will play back certain segments of the video, showing them to both student and teacher participants in the taped event and asking them interpretive questions about the segments being shown. These sessions will be private, each participant being shown the sequences and debriefed about them individually. The second purpose is to provide footage for a video showing effective practices found in vocational settings. This video will be used for dissemination of our project findings throughout the United States. We have no intention of incorporating embarrassing moments or ineffective teaching into our video, as that would defeat our purpose in promoting vocational/ESL collaboration.

It would be very helpful to our research if the scheduling of our interviews and classroom taping can take place prior to our visit. Our project will compensate the staff member you select to find the participants willing to help us and to find appropriate times for interviews and taping sessions. We will need a small debriefing room on Wednesday. If there is a TV monitor available, we would appreciate being able to use it as our portable monitor is very small.

You may be concerned about protecting the confidentiality of participants in this study. The main factor to keep in mind is that your school has been selected for study because of its experience in serving the LEP population vocationally and because some of your teachers have gained valuable knowledge about collaborative methods of instruction. Thus, our intention is not to evaluate your program, but to use it as a model to show other teachers and administrators how this collaboration takes place. With respect to what we find from the interviews, we will directly quote from them occasionally, although we will not attribute specific quotations or findings to any one

individual or research site without permission. We intend to follow the enclosed guidelines for protecting human subjects provided by the University of Illinois (Appendix B). If these are not satisfactory, we will discuss further constraints.

APPENDIX B

Guidelines for Human Subjects Research

INFORMATION REQUIRED FOR IRB REVIEW

Form IRB-1, Information for Review of Research Involving Human Subjects, must be submitted for all activities to be reviewed by the Institutional Review Board. The information required for that review must be presented in full. The investigator's responses should be prepared with IRB readers in mind. Answers should be brief and concise, but complete. Inadequate information causes delay in the review process. The information submitted must demonstrate the investigator's recognition of responsibility for the protection of human subjects in research and his/her comprehension of the UIUC policies, standards, and procedures presented in the HANDBOOK FOR INVESTIGATORS: For the Protection of Human Subjects in Research, January 1992.

Informed Consent. the methods used to obtain consent may vary. They should be designed to fit the research setting -- the nature of the research, the magnitude of the risks involved, the nature of the subjects who will participate, and the requirements of applicable policies, laws, and regulations. In some cases a written consent form is used. In all cases, written or oral, the basic elements necessary for legally effective consent include:

- A fair explanation of the procedures to be followed and their purposes, including identification of any procedures which are experimental, presented in non-technical and simple language understandable by those anticipated to serve as subjects;
- A description of any attendant discomforts and risks reasonably to be expected, if any;
- A description of any benefits reasonably to be expected, either for the subject or for society;
- A disclosure of any appropriate alternative procedures that might be advantageous for the subject (normally applicable only in therapeutic research);
- An offer to answer any inquiries concerning the procedures;
- An instruction that the individual is free to withdraw his or her consent and to discontinue participation in the project or activity at any time without prejudice to the subject.

If a written document is used, the following should be included as well:

- A phone number of an individual who will be available to answer inquiries from subjects;
- A statement that subjects may have a copy of the consent form;
- A written version of the explanation given to subjects of procedures to be followed if this explanation does not appear on the consent form.

The following documentation about informed consent should be included on the IRB-1 form:

- Explanation of how subjects are told about the project and how they are invited to participate;
- Written explanation of the oral or written information given to the subjects and/or their representatives;
- Copies of written or parental consent form (if one is used).

(over)

Research Involving Children. When children are involved as subjects in research, normally the consent of their parents and/or subject representative must be obtained. If the children are capable of assent, normally their assent to participate must also be solicited (See HANDBOOK FOR INVESTIGATORS, pp. 38-39.)

Some projects involving children are exempt from prior review. Exemption categories include some types of research in educational settings. (See HANDBOOK FOR INVESTIGATORS, p. 28.) Even if a project is exempt from review, consent or assent must be obtained in an appropriate way.

Non-exempt research must be reviewed and the investigator must tell the IRB how assent and consent will be obtained. For projects involving children which entail no more than minimal risk, the procedures for obtaining informed consent can be less elaborate. Investigators should be aware that there are several options for obtaining consent for the participation of children. Among these options are:

- Representative consent only (that is, consent by the subject's representative in an institutional setting, e.g. nursery school, school, hospital, park district);
- Representative consent plus information to parents;
- Information to parents plus consent of parents (oral or signed).

The more unusual the research procedures for a given setting in comparison to the usual and expected activity in which the child engages, the more information needs to be conveyed to parents and the greater the formality needed in the consent process. The more similar the research procedures are to experiences usually encountered by subjects in designated settings (school, hospital, park district) the more likely the IRB will accept a less elaborate consent procedure.

Researchers should not assume that it is best to "go the full route" toward parent information/consent in all cases. With the intention of making projects less cumbersome for the researcher, the parents, and the institutional representatives, the IRB supports the simplification of consent procedure whenever justified.

IRB07
1992

APPENDIX C

Information for Faculty and Students

Information for Faculty

"My name is ____. My colleagues and I represent the National Center for Research in Vocational Education at the University of Illinois site. The Center does research on vocational education all over the United States. We very much appreciate your taking time to participate in this research. The purpose of our study is to learn ways in which vocational teachers, language teachers, aides, and counselors work together on behalf of and with students whose first language is not English. Your comments will be included in reports to the National Center, published in journals, and presented at national meetings. I hope you have had a chance to read the information we sent on the protection of human subjects and the preservation of confidentiality. Please be assured that, although names of schools and programs will be included in our reports, neither participants' names nor program sites will be associated with specific answers or events.

We wish to find out in some detail how you perceive your work with other faculty and also with the LEP students themselves. Neither of us has been through your experience, so we want to see things as you do as much as possible. These questions do not evaluate you or your program. Some of them may not be appropriate for your situation. If there are questions you prefer not to answer, please tell us. There are program level questions in which I'll ask you about your experience with LEP students in such areas as program background, knowledge exchange, lines of authority, and program outcomes. I will ask other questions about the instruction of the student you have selected for us to interview and be videotaped in the vocational classroom.

Our questions are aimed at learning about ways that various schools and colleges have provided for the participation by limited English speakers in courses which have formerly been closed to them, often because of such factors as (1) sophisticated and specialized vocabularies, (2) safety precautions, and (3) limited attention to individual needs. As we approach the year 2000, we know there will be a greater need for a skilled workforce, one which uses the talents of previously overlooked groups of people. We expect our publications and video will be greeted with interest and will encourage others to start programs like yours in their schools.

In summary, we appreciate your agreeing to be interviewed and videotaped. We hope the process of participating in our research will be interesting for you. Your reflections on your work with LEP students should help us tell others what you have found useful. Again, if you choose not to answer a question, we will comply with your request. Please be assured that your comments will neither be reported to others here nor be attributed to you or your school in reports of our findings."

Information for Students

"My name is _____. I come from the University of Illinois in Champaign, Illinois, which is not far from Chicago. ____ and I want to learn what we can about ESL/bilingual vocational programs. I am interested in your plans after you finish this program and your experience in the _____ (vocational) class with _____ and _____ (name of teachers).

Thank you very much for agreeing to answer my questions and to be videotaped. I will use the answers you and other students in other cities give me and prepare a report for teachers around the United States to read. Then, I will choose parts of the videotape and make a video showing you, _____ (names of teachers, aides, peers), and students and teachers from other cities. I will show the videotape all around the country, too. We hope that other schools can help their students who are learning English by starting programs like the one here at _____ (name of school or college).

Today and tomorrow, ____ will bring the video camera into your classroom and will take pictures of you, the other students, and the teacher. After we finish taking the video, we will choose some parts to show you on Wednesday, and we will ask you questions about them. At another time during the day, your teacher will also see the same parts and talk about them. But all your answers will be confidential. No one here will find out what you say, and I will not use your name or the name of your school when I report what I learned from you.

If you do not want to answer some of my questions, please tell me. You do not have to answer all of them, especially if you do not know the answer. If you do not understand a question, please tell me, and I will ask it in another way. Also, if there are parts of the videotape you don't want people to see, let me know. Thank you again for helping me with this project."

APPENDIX D

Program Overview

Background

"The first set of questions is about the history and anticipated future of the program of which you are a part (e.g., vocational area, ESL, VESL, and BVT), and the participation by LEP students in vocational classes." (*Together delimit what the relevant program to be discussed is. You may want to talk about a subprogram and the larger program of which it is a part.*)

1. a. When was this program established here at _____ (*name of institution*)?

   b. When did you become involved with it?

2. a. When did LEP students begin participating in vocational classes?

   b. Please tell me briefly how that participation came about.

Changes

3. a. Do you anticipate changes in the LEP population in the next five or six years?

   b. If so, think of each subpopulation (e.g., Hispanic, Vietnamese) in terms of the following criteria and tell what changes you anticipate.

      i. size of group with respect to total LEP population

      ii. educational level

      iii. circumstances under which they have entered the USA (e.g., refugee, immigrant)

      iv. language proficiency (beginning, intermediate, advanced)

APPENDIX E

Knowledge

Program information

"In this section I want to learn who knows about your program, what they know, and what they should know. You can use the chart to help you." (***Hand the Access to Program Information** chart to the person.*) "I will fill in my chart as you answer the questions. Along the top are the titles of people most likely to know about the program. The 'administrator' column refers to your immediate supervisor. The 'community' column refers to the tax-paying community as a whole, including the parents. The items along the side are the different kinds of information they are likely to possess. Answer each question 'yes' or 'no,' or tell me if you cannot answer a particular question. Here are the questions: Do administrators know the stated objectives of your program?" (*Circle "yes" or "no."*) "Do the counselors?" (*Continue asking about each type of information in turn, and circle the appropriate response.*)

Access to Program Information: Who Knows

	Administrator	Counselors	Voc/ESL Teacher	Students	Community
Stated objectives	Yes No	Yes No	Yes No	Yes No	Yes No
Teaching skills required	Yes No	Yes No	Yes No	Yes No	Yes No
Skills taught to students	Yes No	Yes No	Yes No	Yes No	Yes No
Problems faced	Yes No	Yes No	Yes No	Yes No	Yes No
Successes achieved	Yes No	Yes No	Yes No	Yes No	Yes No

Access to Program Information: Who Should Know

"Now I would like to know who you think should know about your program and what they should know. Again, use the chart to help you answer the questions. I will note what you say on my chart." (*Taking each group of people in turn, ask about the items again, emphasizing those where the subject said "no" earlier. Then briefly probe those items where they indicate that people do not know. Ask questions such as Have efforts been made to inform this group about ____ ?*)

Access to Program Information: Who Should Know

	Administrator	Voc/ESL Faculty	Counselors	Students	Community
Stated objectives	Yes No	Yes No	Yes No	Yes No	Yes No
Teaching skills required	Yes No	Yes No	Yes No	Yes No	Yes No
Skills taught to students	Yes No	Yes No	Yes No	Yes No	Yes No
Problems faced	Yes No	Yes No	Yes No	Yes No	Yes No
Successes achieved	Yes No	Yes No	Yes No	Yes No	Yes No

Assessment

"This set of questions pertains to the assessment of students."

1. a. Are students assessed before they enter your set of courses?

   b. If yes, what competencies, aptitudes, etc. are assessed? (Attach a copy of assessment instrument, if available.)

"Now I want to understand who uses the language or reading assessment data collected and how they use it." (*Hand the **Use of Assessment Data** chart to the subject.*) "Along the top are people who might use the data, and along the sides are ways the data may be used. Here are the questions: Do you use the data for placing students in language classes?" (*Circle subject's response.*) "Do you use it to help you place students in vocational classes?" (*Ask about each group in turn as before.*)

Use of Assessment Data

Uses	Yourself	Voc/ESL Faculty	Counselors	Administrators
Placement in ESL	Yes No	Yes No	Yes No	Yes No
Placement in vocational	Yes No	Yes No	Yes No	Yes No
Grouping for instruction within classes	Yes No	Yes No	Yes No	Yes No
Program planning	Yes No	Yes No	Yes No	Yes No

2. Is the assessment procedure effective? (*Probe.*)

APPENDIX F

Authority

"This set of questions deals with issues of who decides which LEP students will receive special support in vocational classrooms." (for vocational teachers)

1. Is there a standard procedure by which LEP students are designated as needing support in the vocational classroom? (*Probe.*)

2. What person(s) make the decision to have support provided?

3. Do you take part in this decision?

4. Would you like more input into the decision? (*Probe.*)

"This set of questions deals with issues of who decides which LEP students will receive special support in vocational classrooms." (for ESL teachers)

1. a. Is there a standard procedure by which LEP students are designated as needing support in the vocational classroom? (*Probe.*)

   b. What person(s) make the decision to have support provided?

   c. Do you take part in this decision?

   d. Would you like more input into the decision? (*Probe.*)

2. a. Do you directly work with LEP students in the vocational classes?

   b. If so, what are your responsibilities?

   c. How are decisions made about what support you will provide on a day-to-day basis?

APPENDIX G

Collaboration

Meetings

"Next I want to find out ways in which vocational teachers work with ESL teachers and/or aides to help ____ and other limited English-speaking students. The first task is to determine under what circumstances you meet, formally or informally, and to ask about the specific information you exchange."

1. a. Do you meet at regularly scheduled times?

   b. If so, how often do you meet?

   c. Do you also meet at unscheduled times?

   d. If so, how often do you meet?

2. Where do you usually meet?

3. What other people do you meet with?

Knowledge exchange

"Using the chart entitled **Knowledge Exchange**, select topics you have discussed with the vocational teacher and projects you have done together." (*Hand the **Knowledge Exchange** chart to the subject.*) "In the first column rate items in terms of how frequently you have discussed them. Use the scale: 0=never, 1=infrequently, 2=of moderate frequency, 3=very frequently." (*Discuss all topics in terms of frequency first.*) "In the second column indicate topics which have resulted in a product or activity, where P=product and A=activity, and briefly describe the product or activity."

Knowledge Exchange

Topics	Frequency	Product or Activity	Description
Student-related			
discuss cultural information	0 1 2 3	P A	
discuss students' home backgrounds	0 1 2 3	P A	
discuss students' performance in class	0 1 2 3	P A	
discuss problems of adjustment to new language and culture	0 1 2 3	P A	
discuss strategies LEP students use to compensate for not knowing a language	0 1 2 3	P A	
meet with students to help with particular problems (instructional or otherwise)	0 1 2 3	P A	
Instruction-related			
discuss alternative teaching techniques	0 1 2 3	P A	
plan lessons, tests, or units of study	0 1 2 3	P A	
create written materials	0 1 2 3	P A	
team teach	0 1 2 3	P A	
create videos	0 1 2 3	P A	
train peer tutors	0 1 2 3	P A	
give presentations to outside audiences	0 1 2 3	P A	

APPENDIX H

Instruction

Language use

"In this section we will talk about the ways you have observed language being used with _____ (name of student). Along the top of the chart are spaces for you to write the names of the people who work with _____ in situations which you have observed. Along the side are various circumstances when oral language is likely to be used." (*Hand the subject the **Language Use** chart and request that s/he fill out the information along the top. Copy the same information on your chart.*) "I would like to know which language is used with the student by each person in each circumstance. The letters are to be understood as follows: N=Native (i.e., Spanish, Vietnamese), E=English, B=both (or a mixed variety). If you do not know, I will leave the item unmarked. Here are the questions. Which language do you use with _____ in an initial instruction situation? Which do you use when you are re-explaining something?" (*Continue asking about the subject's language use with _____, then ask about the way others use language with the student.*)

Language Use

Situation	Yourself	____	____	____
Initial instruction	N E B	N E B	N E B	N E B
Re-explanation	N E B	N E B	N E B	N E B
Demonstration	N E B	N E B	N E B	N E B
Informal talk	N E B	N E B	N E B	N E B
Announcements	N E B	N E B	N E B	N E B
Test review	N E B	N E B	N E B	N E B

Skills and knowledge

"Next we shall discuss skills and knowledge you consider ideal for people who work with the LEP student. These have been identified by others as important for people who work with LEP students to possess. We realize that no one person has them all, and this is not an evaluation of you and your coworkers but a judgment of an ideal team's collective skills. Look at the **Skills and Knowledge** chart." (***Hand the Skills and Knowledge** chart to the subject.*) "Along the top are people who might work with _____. Skills and knowledge are listed along the side. The first set are personal qualities, the next are language skills, and the last are vocational skills and knowledge. Rate the items from 0 to 3, using the following scale: 0=not important, 1=of minimal importance, 2=somewhat important, 3=very important. If you do not know, I will leave the item unmarked." (*Proceed by asking about each skill row by row.*)

Skills and Knowledge

Capability	Yourself	Voc/ESL Faculty	Aide	Peer Tutor
Personal qualities				
Establishes a good working relationship with _____	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Communicates effectively with others working with _____	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Establishes personal rapport with _____	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Understands and accommodates student's culture	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Understands and accommodates student's home situation	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Displays appropriate vocational behavior	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Language skills				
Speaks _____'s language	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Knows _____'s stage of English development and instructs accordingly	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Knows _____'s preferred learning style and instructs accordingly	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Knows _____'s reading level, instructs accordingly	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Vocational skills				
Understands course concepts	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Understands major processes	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Knows safety rules	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Knows use of tools, machines, equipment	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3

Methods

"Next think about the various instructional techniques you have used with your student, _____, in this class." (*Hand the **In-Cass Delivery Methods** chart to the subject.*) "The first column of the chart lists various techniques which vocational teachers might use. Please rate them in terms of overall frequency of use: 0=never, 1=infrequently, 2=of moderate frequency, 3=very frequently. Then rate the techniques in terms of how effective you believe them to be for this student: 0=of no value, 1=of limited value, 2= of moderate value, 3=very valuable. How frequently do you use lectures? How valuable do you think these are for your LEP student?" (*Continue with each item row by row.*) "If you have had different experiences with other LEP students, I can note them as we go along." (*Probe the differences between this student and 'typical' LEP students where relevant, and note in the last column.*)

In-Class Delivery Methods

Technique	Frequency	Value for LEP	Notes
Lecture	0 1 2 3	0 1 2 3	
Discussion	0 1 2 3	0 1 2 3	
Small group work	0 1 2 3	0 1 2 3	
Teacher demonstration	0 1 2 3	0 1 2 3	
Student presentations	0 1 2 3	0 1 2 3	
Reading and answering questions	0 1 2 3	0 1 2 3	
Hands-on practice	0 1 2 3	0 1 2 3	
Tests	0 1 2 3	0 1 2 3	
Role-playing	0 1 2 3	0 1 2 3	
Field trips	0 1 2 3	0 1 2 3	

Materials

"Next think about the various materials you have used with your student, _____, in this class." (***Hand the Materials chart to the subject.***) "The first column of the chart lists various materials which vocational teachers might use. Please rate them in terms of overall frequency of use: 0=never, 1=infrequently, 2=of moderate frequency, 3=very frequently. Then rate the techniques in terms of how effective you believe them to be for this student: 0=of no value, 1=of limited value, 2=of moderate value, 3=very valuable. How frequently do you use lectures? How valuable do you think they are for your LEP student?" (*Continue with each item row by row.*) "If you have had different experiences with other LEP students, I can note them as we go along." (*Probe the differences between this student and "typical" LEP students where relevant, and note in the last column.*)

Materials

Materials Used	Frequency	Value for LEP	Notes
Textbooks	0 1 2 3	0 1 2 3	
Other books	0 1 2 3	0 1 2 3	
Work sheets	0 1 2 3	0 1 2 3	
Charts	0 1 2 3	0 1 2 3	
Interactive computer programs	0 1 2 3	0 1 2 3	
Films, video, filmstrips	0 1 2 3	0 1 2 3	
Overhead transparencies	0 1 2 3	0 1 2 3	
Chalkboard	0 1 2 3	0 1 2 3	
Bulletin board or wall displays	0 1 2 3	0 1 2 3	

APPENDIX I

Expectations

Student outcomes

"In this set of questions I want to know what you and others expect of LEP students in vocational programs. Using the **Expectations for Students** chart, please assign a rating to each outcome for each of the individuals involved, and I will write what you say." (*Hand the chart to the subject.*) "Use the scale: 0=no expectation, 1=few expectations, 2=moderate expectations, 3=considerable expectations. If you do not know what other people expect, I will leave the item unmarked."

Expectations for Students

Outcome	Yourself	Voc/ESL Faculty	Students	Community	Others
Maintain passing grades	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Attend class regularly	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Avoid dropping out	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Demonstrate skills in this area	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Demonstrate knowledge of safe and appropriate ways to use the equipment	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Enter an academic program at a two-year college	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Enter a voc/tech program	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Enter apprenticeship program	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Enter the job market	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Qualify for a license in this occupation	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3

Program outcomes

1. If you could wave a magic wand and make people value and appreciate something about your contribution to the LEP vocational students, what would you want them to value and appreciate?

2. If you could wave a magic wand and do anything you wanted to help the vocational LEP students, what would it be?

APPENDIX J

Administrative-Level Questions

General information:

Program title:

Program contact (name, position):

Program focus:

Institution:

Address:

Telephone:

LEP population served:

Number of LEP students served in 1989:

Number of LEP students now enrolled:

Approximate numbers of students representing various language backgrounds (i.e., Spanish, Lao):

Budget:

Total budget for bilingual vocational or bilingual/ESL program:

- federal contribution
- state contribution
- local contribution
- private contribution (list example sources)
- other

Cost per participant:

Outcomes (1987-1989) (as identified by federal guidelines):

Number of LEP students completing vocational programs:

Number of LEP completors employed:

Number of LEP completors in training-related jobs:

Number of LEP completors in advanced training or academic program:

Other outcome evidence:

Placement of students:

How are LEP students placed in vocational classes (i.e., self-enrolled, assigned)?

How is the decision made that an LEP student will receive special support?

Staff development and support:

Are the vocational instructors given special training before they work with the LEP students?

Are the instructors provided with any instructional support staff, counseling staff, or special LEP materials?

If so, briefly describe these services.

Are teachers encouraged to provide modifications of materials and methods for LEP students?

If so, who is in charge of efforts to do so?

Is funding available for creating materials?

APPENDIX K

Counselors' Questions

Program overview:

Background

The first set of questions is about your experiences with LEP students at this school.

1. How long have you worked with LEP students?

2. In what ways is working with them different from working with non-LEP students?

Population

"Now think of this population of students in your school. Use the chart to help you characterize the group. First, tell me the national origin of each group." (*List each group along the top of the chart. Then give the subject the list of criteria.*) "Now look at the list of criteria and tell me about each group in terms of the criteria. First, what percentage of the total LEP population is in the ____ group? What is their home language?" (*Do the same for each group, going down the list on the left with each one. When an item seems of interest, probe, particularly where there are changes.*)

LEP Population Chart

National origin ->	____	____	____	____
Size of the group (% of total LEP population)				
Home language				
Range of educational level on entry (by # of years)				
Circumstances under which they have entered the USA (e.g., refugee, immigrant)				
Range of language proficiency (beginning, intermediate, advanced)				

Changes

"Now look at this list of criteria again, and tell me about any changes in the population of each group that have occurred over the past five or six years." (*Go through the list again, and note the changes described.*)

LEP Population Chart

National origin ->	____	____	____	____
Size of the group (% of total LEP population)				
Home language				
Range of educational level on entry (by # of years)				
Circumstances under which they have entered the USA (e.g., refugee, immigrant)				
Range of language proficiency (beginning, intermediate, advanced)				

Background information

In this section we will discuss the type of information collected about LEP students in your program/school.

1. a. Is background information collected on the LEP student who enters your program?

   b. If so, what information do you collect? (*If forms which are filled out on the students are available, request a copy. Otherwise, list the information.*)

   c. Is the information used in any way? (*Probe.*)

   d. Would you like more information made available about the students? (*Probe.*)

Language assessment

"Now I want to find out what kinds of assessment are made of the students' language skills. Using the **Value of Language Assessment** chart, we will discuss what skills are assessed and how you rate the value of the assessment findings." (***Hand the Value of Language Assessment chart to the subject.***) "Along the top are the types of assessment which your school might conduct with space under each type to indicate the name of the instrument. "Along the side are terms indicating the value of these instruments from your point of view. Rate the value of the instruments in terms of the aspects listed, using the following scale: 0=no value, 1=of limited value, 2=of moderate value, 3=of great value."

Value of Language Assessment

Instruments	Speaking	Listening	Writing	Reading	Loc skills
Name of instrument					
Valued aspects					
Availability of results	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Conciseness of presentation	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Usability of results	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Interpretability	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3

Vocational assessment

"Now I want to find out what kinds of assessment are made of the students' vocational skills. Using the **Value of Vocational Assessment** chart, we will discuss what skills are assessed and how you rate the value of the assessment findings." (***Hand the Value of Vocational Assessment** chart to the subject.*) "Along the top are the types of assessment which your school might conduct with space under each type to indicate the name of the instrument. Along the side are terms indicating the value of these instruments from your point of view. Rate the value of the instruments in terms of the aspects listed, using the following scale: 0=no value, 1=of limited value, 2=of moderate value, 3=of great value."

Value of Vocational Assessment

Instruments	Math	Logic skills	Problem solving	Manual aptitude
Name of instrument				
Valued aspects				
Availability of results	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Conciseness of presentation	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Usability of results	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
Interpretability	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3

APPENDIX L

Student Interview

Background information:

1. What country do you come from?
2. How long have you been in the United States?
3. How long have you been in this city?
4. How many years of school did you have before you came to the United States?
5. How many years have you studied English?
   a. In your country
   b. In the United States
6. Do you have other responsibilities besides being a student? (*Probe.*)

Goals:

1. Why are you taking this class?
2. What kind of job do you hope to have when you finish school here?
3. a. Will you continue your education after you finish here?
   b. If so, what is the highest degree you plan to get?

Support

"Now I want to know what kind of help you are receiving from different teachers, aides, and friends. At the top of the **Support** chart are the titles of people who might help you." (*Hand the chart to the student.*) "As we talk, I will circle 'yes' if the person helps you and 'no' if s/he does not."

Support

Type of support	Vocational teacher	ESL teacher	Aide	Friend
How to use the equipment or machines	Yes No	Yes No	Yes No	Yes No
How a process works	Yes No	Yes No	Yes No	Yes No
How to behave at work	Yes No	Yes No	Yes No	Yes No
How to get a job in this field	Yes No	Yes No	Yes No	Yes No
New words and ideas from the lessons	Yes No	Yes No	Yes No	Yes No
Pronunciation of words	Yes No	Yes No	Yes No	Yes No
Writing, reading assignments	Yes No	Yes No	Yes No	Yes No
Studying for tests	Yes No	Yes No	Yes No	Yes No
Translating into your language	Yes No	Yes No	Yes No	Yes No

Methods

"Teachers use many different ways or techniques to teach the content of their courses. Using the first column of the **In-Class Delivery Methods** chart, I want you to rate the techniques the teachers use according to how often they use them." (*Hand the chart to the student.*) "Use the scale: 0=never, 1=not often, 2=sometimes, 3=very often. In the second column, please tell what techniques help you learn the most: 1=no help, 1=very little help, 2=of average help, 3=very helpful."

In-Class Delivery Methods

Technique	How often	How helpful
Lecture (teacher explains)	0 1 2 3	0 1 2 3
Discussion (teachers and students discuss)	0 1 2 3	0 1 2 3
Small-group work	0 1 2 3	0 1 2 3
Teacher shows how to do something	0 1 2 3	0 1 2 3
Students explain or show something	0 1 2 3	0 1 2 3
Reading and answering questions from the book	0 1 2 3	0 1 2 3
Hands-on practice	0 1 2 3	0 1 2 3
Tests	0 1 2 3	0 1 2 3
Role-playing	0 1 2 3	0 1 2 3
Field trips	0 1 2 3	0 1 2 3

Materials

"Teachers use many different materials to teach the content of their courses. Using the first column of the **Materials** chart, I want you to rate the materials the teachers use according to how often they use them." (*Hand the chart to the student.*) "Use the scale: 0=never, 1=not often, 2=sometimes, 3=very often. In the second column, please tell what materials help you learn the most: 0=no help, 1=very little help, 2=of average help, 3=very helpful."

Materials

Materials Used	How often	How helpful
Textbooks	0 1 2 3	0 1 2 3
Other books	0 1 2 3	0 1 2 3
Worksheets	0 1 2 3	0 1 2 3
Charts	0 1 2 3	0 1 2 3
Interactive computer programs	0 1 2 3	0 1 2 3
Films, video, filmstrips	0 1 2 3	0 1 2 3
Overhead transparencies	0 1 2 3	0 1 2 3
Chalkboard	0 1 2 3	0 1 2 3
Bulletin board or wall	0 1 2 3	0 1 2 3